JANUARY 1961

Material Handling Engineering

Established in 1945 as FLOW Magazine

GUIDE TO RECEIVING AND STORING

Returnable Containers ■ Basic Unit for Storage ■ Dock Layout ■ Slot and Bin Storing ■ Yard Storage

STEVENS RICE
UNIVERSITY MICROFILMS
313 NORTH FIRST ST
ANN ARBOR MICH
FIZ

Also in this issue **WHY BUY A SYSTEM?**

mhe

AN INDUSTRIAL PUBLISHING CORPORATION MAGAZINE

How to Select a Returnable Container 38
Good Dock Layout—A Must in Handling 44
Today's Yard Storage Brings New Benefits 49

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ONE source . . . ONE responsibility

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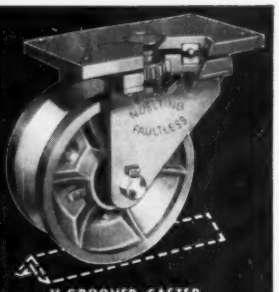
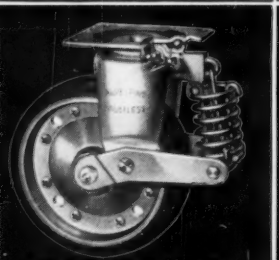
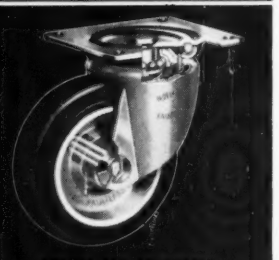


V-GROOVED CASTER
rolls on angle iron track.

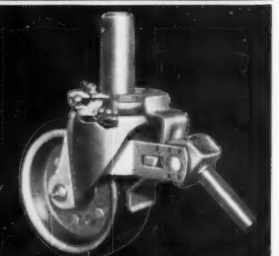


SPRING ACTION CASTER
cushions jolts of irregular floors.



GREASE SEALED CASTER
keeps out brine, steam, dirt, etc.

HOSPITAL STRETCHER CASTER
runs quietly without wobbling.



SCAFFOLD CASTER
has wheel and swivel lock.

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EVANSVILLE 7, INDIANA

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Circle **37** on Reader Service Card

New NEOTHANE Tire can tote 2 to 4 times the load 4 times longer

Stack the NEOTHANE up against any conventional tires—under the worst conditions this remarkable Goodyear industrial "solid" will outlast the others as much as 4 times, even when lugging 2 to 4 times the load.

Secret of this unmatched toughness is a new Goodyear polyurethane development that has amazing durability combined with resiliency. Photo above taken through heavy plate glass shows that NEOTHANE tires roll over metal chips, splinters, even broken glass with virtually no gouging or cutting. They won't swell or turn spongy when driven through water, oil, grease, solvents or acids.

Tough as they are, however, NEOTHANE tires "give" enough to stand up under rough going. And they're harmless to polished floors. If your service is really tough and if your tire dollars aren't buying enough mileage, why not try NEOTHANE? Full details are on tap at your Goodyear Dealer's. Or write Goodyear, Industrial Tire Sales, Akron 16, Ohio. Remember—lots of good things come from Goodyear.

Buy and Specify NEOTHANE Industrial Tires by

GOODYEAR

Neothane—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

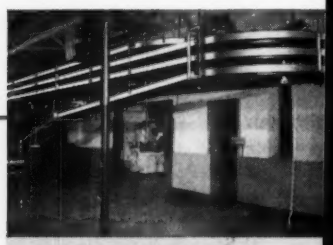
Circle **42** on Reader Service Card

Here's a Savings Program for INDUSTRY

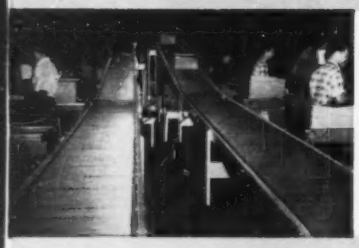
There's no limit to savings when you've got a Wendway Conveyor system in your plant. For, if you move *anything*—product, carton, package, part bag or assembly ... from machine to machine ... one room to another, Wendway is the one practical, economical method. Even better . . . a Wendway system will quickly pay for itself in actual, provable time, labor and equipment savings. So, if you want increased production efficiency and handling savings the easy way...remember Wendway!

Wendway easily adapts and installs with existing equipment to speed processing and continuous flow—eliminates handling, storage and equipment.

"Stub" Wendway, a short single tier unit with *regular* link-rod belting, conveys packages from bag loaders through a series of stapling and sealing operations. Installations may be permanent or portable to suit the need.

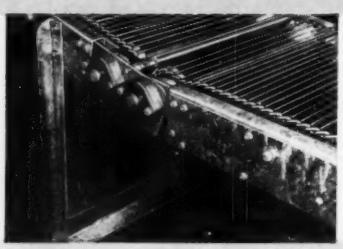


Ceiling-mounted Wendway saves floor space and proves ideal for cooling or drying operations. "Spiral" conveyor shown travels products for predetermined period before returning them to floor level for processing.

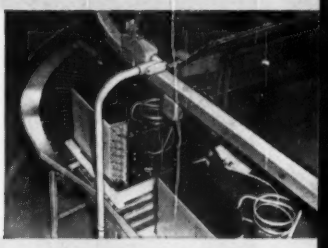


Large glass plant installed this "production line" Wendway system to convey air filters from assembly and stapling machines to elevated shipping and boxing stations.

A typical package conveyor installation, this three-tier Wendway system extends the full length of the loading dock. System is fed by self-powered "roll-away" switch section (center-left).



Powered transfer rollers between regular Wendway sections eliminate "dips" or "hang-ups" to conveyed products, cartons, etc. Regular link-rod Wendway belting is available in regular or stainless steel; also spring steel.



For heavy duty or difficult application, Wendway slat type conveyors are recommended. Conveyor in this installation is carrying room air-conditioners smoothly and safely.

Close-up of the powered slat curve conveyor shows how individual slats smoothly negotiate curve without variation in open spacing. Heavy duty slat type Wendway is available in powered straight sections, 90° or 180° curves.

Wendway is also available with solid belting such as Canvas, Neoprene or rubber belting to meet every need. Belting widths mix or match with *regular* or slat type units.

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INDUSTRY'S MOST VERSATILE POWERED CONVEYING SYSTEMS

Write Today...

for additional information on Wendway Conveying Systems. Yours—without obligation.

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UNION STEEL PRODUCTS CO.

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Circle **92** on Reader Service Card

reader's guide to

JANUARY 1961

Material Handling Engineering

Established in 1945 as FLOW Magazine

volume 16 number 1

MATERIAL HANDLING'S STARTING POINT..... 37
Introduction to the MHE Guide to Receiving and Storing.

HOW TO SELECT A RETURNABLE CONTAINER..... 38
First decide whether you can use returnable containers—then pick the type.

IS A BASIC STORAGE UNIT POSSIBLE..... 40
Base dimensions are the key to a standard unit for shipping and storing.

DO INCOMING MATERIALS COME IN THE PACKAGE BEST FOR YOU?.....42
It may mean savings to you to specify packaging to your vendors.

GOOD DOCK LAYOUT—A MUST IN HANDLING..... 44
Rules to apply when you design a dock.

BIN OR SLOT STORAGE—ONE IS BETTER FOR YOU.....47
Advantages and disadvantages of opposing storage systems.

TODAY'S YARD STORAGE BRINGS NEW BENEFITS..... 49
The new, improved, and significant trends in yard receiving and storing.

CASE STUDIES IN RECEIVING AND STORING.....53
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- **Mobile Equipment Speeds Yard Receiving.....53**
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Train yourself to think systems—and make it pay off for you.

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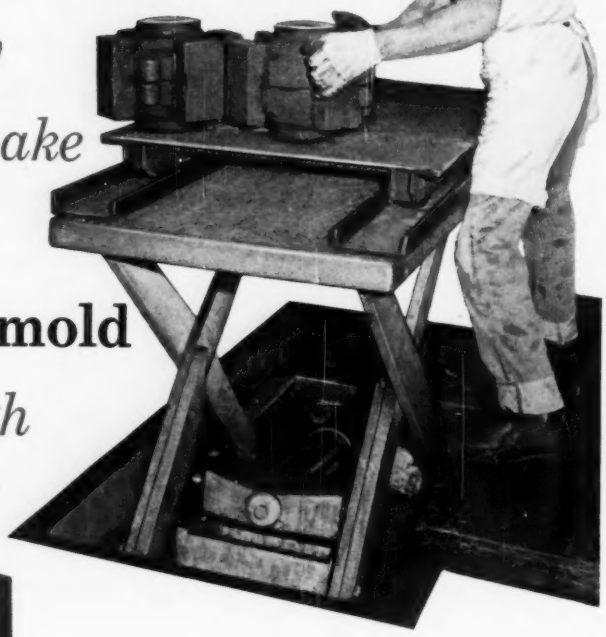
Photos courtesy Brunswick Corporation

How to make an **80 lb. mold** *weigh less!*



Reduce the fatigue factor and you have your answer. These bowling ball molds at Brunswick Corporation actually weigh no less than they did *before* Southworth Lift Tables* were installed so they could be handled at an optimum working height with a minimum of physical exertion. But ask the men who now *slide* such molds on or off the skids. Pounds shaved or foot-pounds saved, the result is the same. They can handle more molds with less effort!

Increasing production, improving morale, decreasing costs, reducing accident hazards . . . these are problems solved every day by Southworth materials handling engineers. Why not call us in on yours?

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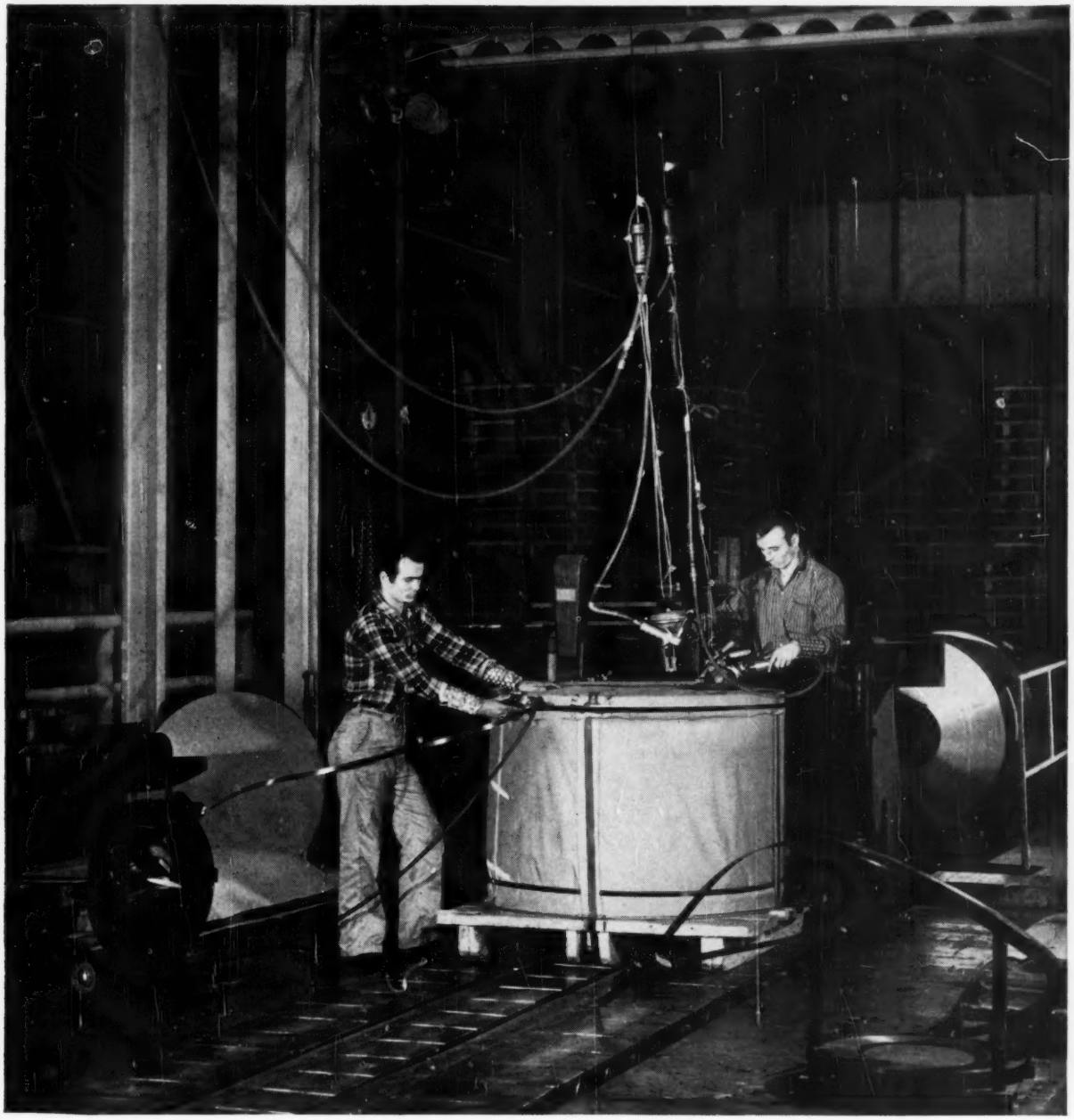

Production line strapping of tin plate coils

Packaging of tin plate coils is now on a production line basis in speed and low cost. Fast, dependable Signode air power tools take ¾″ and 1¼″ steel strapping from the dispenser, eliminating the waste of cut-to-length strap. Overhead tool suspension systems and engineered dispensers add mobility and save more time and effort. Engineered installations by Signode save time and money. Write for more information. Ask for free copy of "Air Power Tensioners and Sealers."

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JUDGE THESE CASES of Monarch Solids vs. Premature Rim Separation

Here are the facts:

The following are typical field reports on test installations in which conventional solid tires had been failing prematurely.

Case #3

ALUMINUM RESMELTING PLANT

PROBLEM: In normal operation, standard solids were failing in two months because of rim separation.

CONDITION: Floor littered with sharp aluminum scrap, chips and shavings.

TEST RESULTS: *New Monarchs with Monolok bond ran six months . . . 200% longer . . . and were replaced after normal rough wear. Bonds did not fail in spite of heavy scrap embedded in tread and piercing base band.*

Case #8

TANNERY

PROBLEM: Original equipment solids failed in two months: rim separation.

CONDITION: Floors covered with salt brine and sulphuric acid.

TEST RESULTS: *Monolok bonded tires have been in operation seven months . . . a 250% improvement to date . . . and still are running satisfactorily.*

Case #21

COAL MINE (Bore Operation)

PROBLEM: Standard solids failed in six months because of chipping at outside base and subsequent separation.

CONDITION: Rough surfaces + overloads.

TEST RESULTS: *Twelve Monarchs with the Monolok bond already have lasted eleven months . . . 83% longer . . . and still are in satisfactory condition.*

The most universal type of failure experienced with industrial solid tires . . . premature rim separation . . . frequently is caused by embedded metal scrap, chemicals or excessive heat. And because these factors destroy the rubber-to-metal bond, they cause severe tire damage (and high replacement costs) under normal operating conditions.

MONARCH engineers have succeeded in solving this serious problem by combining an advanced bonding process with an improved, extra tough, natural rubber stock . . . Compound T-5100. *Result: MONARCH tires now feature unprecedented resistance to rim separation* caused by the above factors.

Verdict: NEW "MONOLOK"* PROCESS CAN CUT YOUR TIRE REPLACEMENT COSTS!

See your Monarch dealer or write direct for BULLETIN MR-457.

* "Monolok" is Monarch's trade-name for a new chemical process that creates the most durable rubber-to-metal bond available to date.

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mhe NEWS ROUNDUP

Containerization by helicopter

AN INTEGRATED containerization system was tried out in New York City harbor. A 2-ton container arrived on a flat car at the Weehawken, N.J., rail yard. It was moved by truck trailer to a nearby pier. A helicopter lifted it over the Hudson River, set it down on an ocean-going freighter. The demonstration was sponsored by the Strick Trailer Co. and Sikorsky Aircraft.

Moving footpath in London

A PEOPLE CONVEYOR broke London's nastiest subway bottleneck, the section between Waterloo Station and the Bank, also called the Drain. During rushhour, more than 13,000 would push and shove through a narrow passageway to the surface. Engineers solved it with a moving belt 297 ft. long, designed to handle 20,000 passengers an hour. It rises 42 ft., travels at 180 fpm. This is claimed the world's largest moving footpath and the first in Europe.

Shippers ask container tests

THE NATIONAL ASSOCIATION of Shippers Advisory Boards has asked that common carriers start a program for testing shipping containers on a continuing basis. Purpose is to reduce claim payments and improve the quality of containers. The group, meeting in Minneapolis, also called for complete removal of key-point restrictions on railroad operations, thus permitting more flexible motor truck service.

Curtis D. Buford of the Association of Amercian Railroads told the group that Soviet railroad technology is at least 30 years behind the U.S. But, he said, the Russians are moving huge quantities of goods by rail at low cost and with minimum requirements for new transportation capital.

Parcel handling in Melbourne, Sydney

A SEMI-AUTOMATIC SYSTEM sorts 48 packages a minute at two large central postal depots in Australia. The system, installed in Melbourne and Sydney, has been so successful that Britain and New Zealand are installing them. Parcels weighing up to 11 lb. move by belt to an open top hopper. Two workers pick parcels from the hopper, read the addresses, place the parcels on a 60-ft. slanted belt. At the same time they push a button, selecting a station according to the regional address. When the parcel

reaches the preset destination, a gate opens, dropping the parcel into a mobile sorting bin. Control is electromagnetic. The system remembers where the parcel is on the belt and sees that the right gate opens when the parcel

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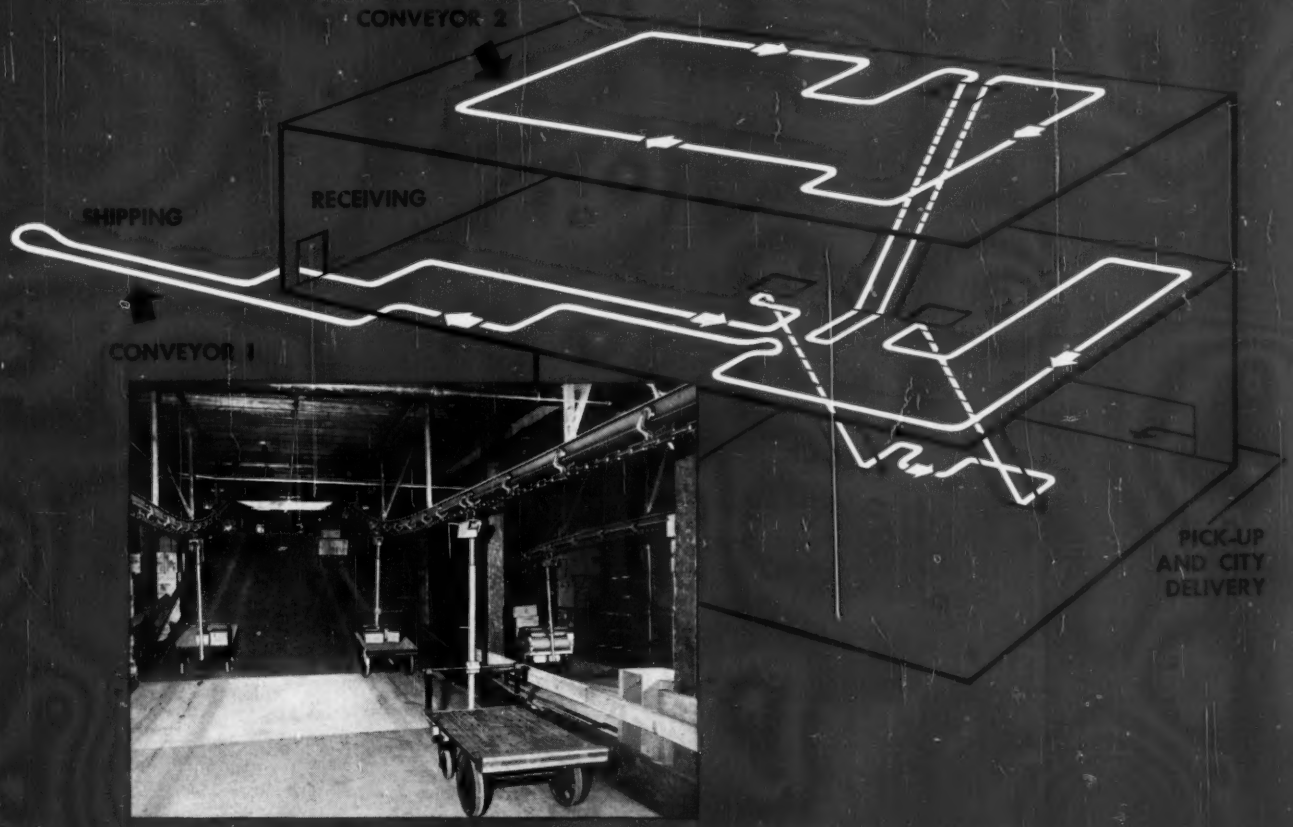
WEBB TOW-CONVEYOR SYSTEM



Modernizes Handling In Three-Story Warehouse

FASTER travel from loading to unloading areas
EASIER—truck movement from docks to storage is unattended
ECONOMICAL—more material handled per man hour
LIVE STORAGE on trucks reduces required dock area
EFFICIENT WAREHOUSING—more uniform flow, better inventory control, fewer personnel

In an existing 360,000 square foot warehouse, how do you modernize the handling of 40,000 different hardware items stored on three floors? Here's how a Webb Tow-Conveyor system efficiently answered the problem for the Stratton Warren Hardware Company in Memphis, Tennessee.

Two overhead tow-conveyor lines were installed to provide continuous "loop" type travel of warehouse trucks. Both conveyors travel at a constant speed of 85 F.P.M. and tow-trucks can be attached on 16-foot centers. Thus, the entire system has a capacity of 255 tow-trucks carrying an average load of 600 pounds each.

Conveyor number one (see schematic drawing above) serves "pick-up and city delivery", shipping dock, basement area and first floor warehousing area. Note at top of two 9° ramps connecting basement to first floor, conveyor one is in close proximity to conveyor two. This permits quick and easy transfer of tow-trucks from one conveyor line to the other. From the first floor, conveyor number two tows trucks up and down a 12° ramp and around the second floor. Fixed travel pattern of tow-trucks was established to provide maximum convenience and efficient handling in all areas of warehouse.

To assure controlled safe towing of trucks up and down the ramps, rigid telescoping masts were attached to each tow-truck and a specially designed engagement box was mounted to bottom of conveyor trolleys. The upper end of the mast slides into the trolley box and is automatically locked in place—a simple manual pull on box release lever disengages the mast. The telescope construction of the mast permits lowering for entrance into highway trucks. Convenience and efficiency are evidenced everywhere in this modern handling system.

Mr. Leslie M. Stratton, President, says: "The conveyor works perfectly and we are well satisfied. My only regret is that we did not have the conveyor installed ten years ago."

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SPECIALISTS IN CUSTOM CONVEYOR SYSTEMS

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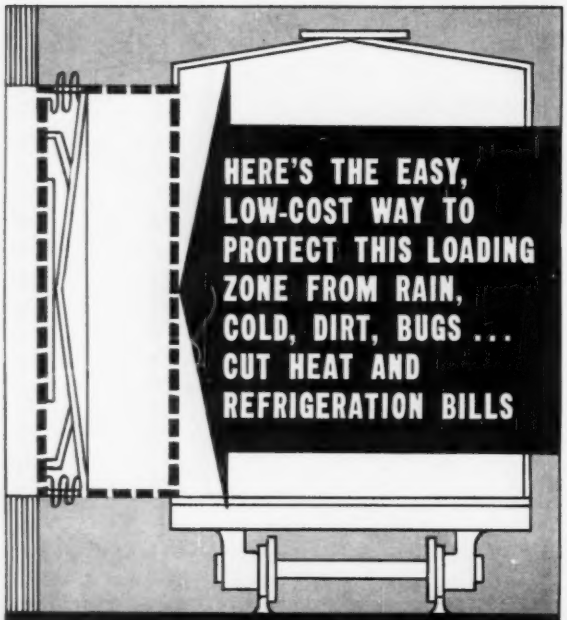
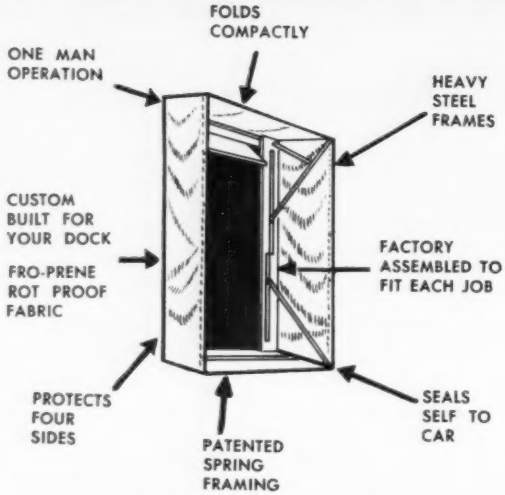


install Frommelt Rail-Dox

DOCK SHELTERS

Pat. No. 2892463



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The Name to Remember in Approved Protective Products!

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NEWS ROUNDUP

arrives. Advantages: reduced breakage. And the system costs only $18,000, compared with costs up to $224,000 for systems with no greater output.

New standards for reels

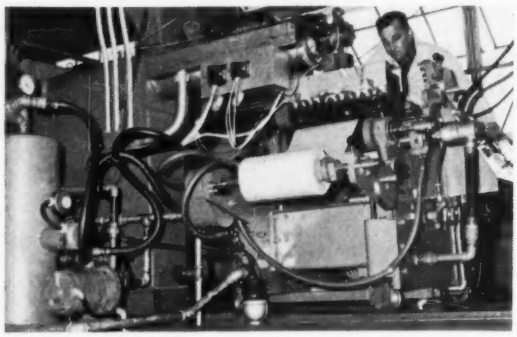
THE ALUMINUM ASSOCIATION has developed new reel standards for packaging bare aluminum electric conductor. The standards cover reels of only 12 sizes, but these reels will take all standard types and sizes of stranded aluminum conductor and ACSR (aluminum conductor, steel reinforced). The association is expected to issue the standards early this year. Objective is to allow maximum economy to manufacturers and users and, at the same time, service the users properly.

Canadian show awards climb

THE PACKAGING ASSOCIATION of Canada last month handed out 53 awards for entries in the Canadian National Packaging Exposition. This compares with 36 the year before. Awards were made in three divisions: consumer, display, and industrial. The association also has named Thomas M. Dutton packaging man of the year. Executive vice president of Wonder Bakeries Ltd., he helped bring sliced bread to millions of Canadians. In other news, the Packaging Association reported that 40 percent of the space for the 1961 show was sold before the gates closed on the 1960 show. The 1961 show will be Oct. 31, Nov. 1 and 2 at Toronto's Exhibition Park.

Makes film coats cheaply

A PILOT EXTRUDER for applying all sorts of polyethylene films is used by American Sisalkraft Co. It enables packagers to try out cus-



tom made poly-coated wraps at small cost, without having to try them on large production machines. The extruder turns out small

Continued on page 12

Now reduce aisles to 6′–capture ←36%→ "lost" storage space–as Glidden did!

By purchasing the Towmotor "Naro-Aisle-Stack" Series fork lift truck pictured above, The Glidden Company realized an immediate 36.8% gain in storage capacity at their Reading, Pa. warehouse.

Reducing 9′ 6″ wide aisles to six feet enabled the new lift truck—which stacks heavy loads 90° left or right in the narrow aisles—to bring Glidden many other advantages as well. Now 42% more Glidden products are warehoused. Order filling and shipping are expedited. And the cost of additional warehouse facilities was averted.

Find out how this new "Naro-Aisle-Stack" Series truck can save *your* space, time and dollars as it has for The Glidden Company. Write for new booklet, "Captures Lost Space." TOWMOTOR CORPORATION, CLEVELAND 10, OHIO.

NEW "NARO-AISLE-STACK" SERIES FORK LIFT TRUCKS DESIGNED AND BUILT BY...

TOWMOTOR THE ONE-MAN-GANG® -GERLINGER

FORK LIFT TRUCKS, CARRIERS AND TRACTORS SINCE 1919

Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

Circle 90 on Reader Service Card

3

THREE ANSWERS

To Your Lifting Problems From

AMERICAN'S AUTOMATION LINE

AMERICAN'S Pantograph Lift Tables, in the M-1170 Series, have been designed for all industries using pallets or skids. The Pantograph Lift Tables are characterized by their small platform sizes, high travel, and capacity range.

AMERICAN'S Series M-1202 Lifts are truly the "Jack-of-all-Work". Ideally suited for handling intermediate sized loads of sheet materials, bulky items, or heavy awkward parts.

AMERICAN'S Series M-1223 Lifts are designed for heavy industrial applications—to handle heavy sheet material, lumber, structural steel, brick and tile, as well as bulky, heavy or awkward pieces.

For Complete Information Ask for Bulletin AMC-1300

American MANUFACTURING COMPANY INC.

2119 PACIFIC AVENUE • TACOMA, 2 WASHINGTON, U. S. A.

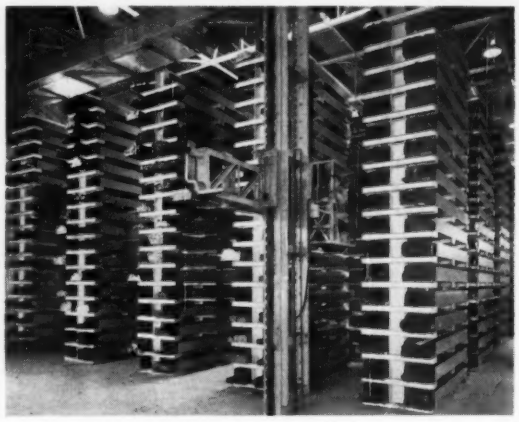
Circle 5 on Reader Service Card

NEWS ROUNDUP

lots up to 12 inches wide, as thin as ½ mil and as thick as 5 mils. It can coat board stock, even burlap. Among the recent trials have been dull finish coating and pigmented coatings applied to reinforced kraft.

Stack rack for steel

A SUPER FILING CABINET made of racks holds up to 1,350 different sizes of bars and tubes at Jones & Laughlin Steel Warehouse Division's new Cleveland Steel Service Center. The rack is 22 ft. high, covers 60 by 160 ft. It's 17 shelves high and each shelf can hold three tons of steel.



The worker can pick and deliver from any shelf in less than three minutes. The entire warehouse, covering 140,000 sq. ft., cost $1,500,000.

Glidden named contest judge

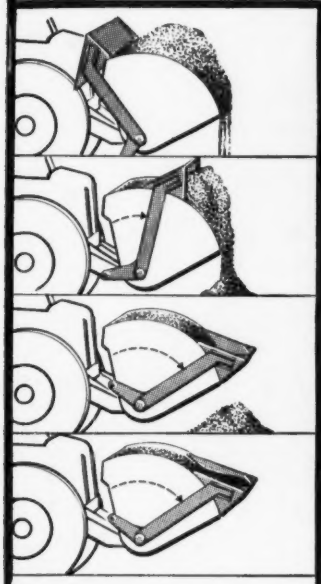
ROBERT D. GLIDDEN is one of 10 judges in the second annual Collegiate Packaging Design Contest, sponsored by the St. Regis Paper Co. He's vice president in charge of paper operations of Personal Products Corp. and director of the firm's Cel-Fibe Division. There are three packaging industry judges, three professional package designers, and four representatives of the packaging press. The contest, which closes April 30, is open to students in 410 colleges and universities in eight states where St. Regis has Folding Carton Division plants. You can get contest details from William R. Biggs, Crowell Carton Co., Marshall, Mich.

Standardize at divisional level

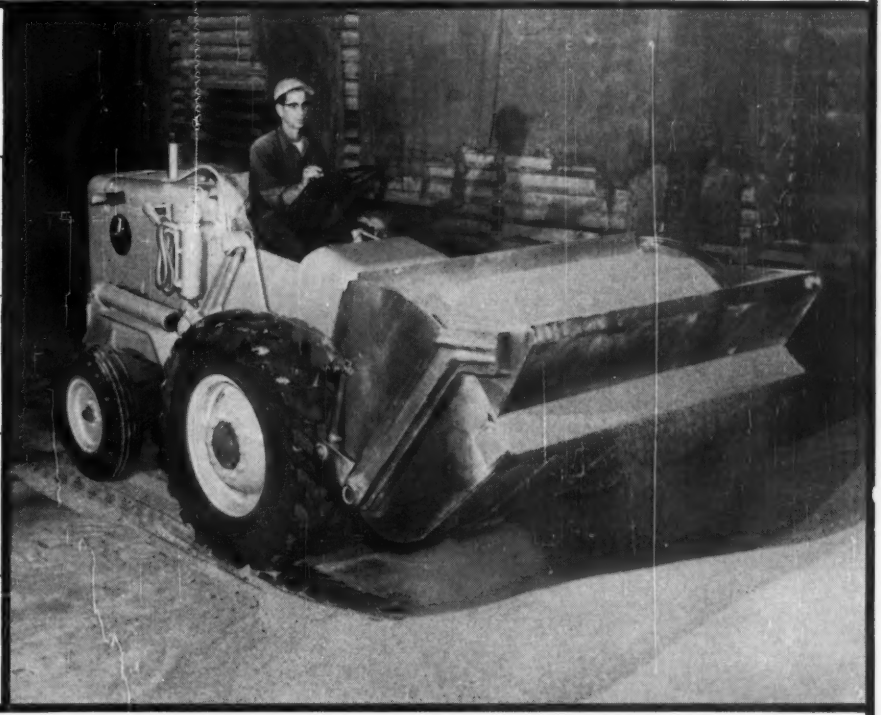
A VICE PRESIDENT of quality and logistics at North American Aviation, John W. Young, said company standardization is more effective

Continued on page 16

New PAYLOADER® NO-SPILL Bucket



A strikerbar-spillguard blade, by hydraulic power, sweeps forward removing excess material. Blade remains forward in transport to retain load.



- ■ ■ ■ **Eliminates spillage during transport**
- ■ ■ ■ **Saves costly floor and aisle clean-up**
- ■ ■ ■ **Eliminates re-working spilled material**
- ■ ■ ■ **Increases daily productive capacity**
- ■ ■ ■ **Delivers uniform loads for "batching"**

The "No-Spill" bucket is the latest of many PAYLOADER *firsts*, and makes the tractor-shovel a cleaner, more productive and more efficient materials mover than ever before. Its two features — the striking-off of excess material while loading, and preventing any loss of load while transporting — give many on-the-job savings and benefits:

1. Permits higher transport speeds for more trips and more production.
2. Delivers bigger loads as none is lost in transit.
3. Eliminates the dust nuisance caused by light, dry materials spilling in transit.
4. Prevents the accumulation and build-up of spillage along aisles — saves the cost and time of digging up and reprocessing such spillage.
5. Eliminates the contamination and waste involved when different materials are spilled on the same routes.

Three popular PAYLOADER sizes can be supplied with "No-Spill" buckets — the Models HA, H-25 and HAH. Your Hough Distributor will be happy to show you what they can do to improve materials moving efficiency on your operations. See him today or return the coupon.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER and PAY are registered trademark names of The Frank G. Hough Co., Libertyville, Ill.

THE FRANK G. HOUGH CO.
731 Sunnyside Ave., Libertyville, Ill.
Send Information on "No-Spill" Buckets for PAYLOADER models.

Name _____
Title _____
Company _____
Street _____
City _____ State _____

1-A-1

Circle **46** on Reader Service Card

MOBILIFT

Standing room only?

THIS TRUCK THAT PIVOTS IN 55 INCHES IS THE TICKET!

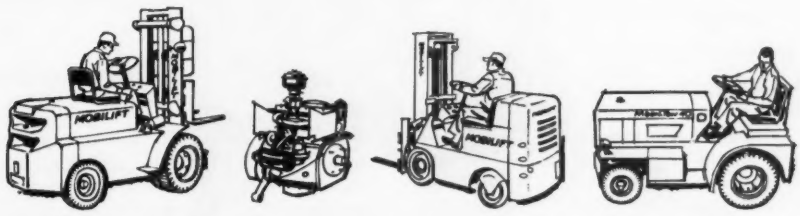
The exclusive Mobilift Stand-Up Truck sneaks in tight corners, threads 3 foot aisles . . . saves time, space, money.

What's your handling problem? Limited space? Congested aisles? Inexperienced operators? Here's a simple, *inexpensive* solution: Mobilift's exclusive engine-powered Stand-Up Lift Truck.

These trucks are as small as 33″ wide and 64″ long, less forks. They have zero inside turning radius. They can corner in just 52″, turn around in just 9 feet, thread aisles only 35″ wide. Yet they can lift 2000 to 3500 lbs. as high as 17 feet, depending on model.

A man can learn to operate a Stand-Up in one day. And he's mobile and safe. He can get on or off in a step.

The Stand-Up Truck gives you all these cost-saving advantages —plus unique Lev-R-Matic transmission and high free lift. *Yet it costs less than any other gas-operated truck.* Whether it's a sit-down or a stand-up truck you need, we can solve your handling problem inexpensively. For full information at no obligation write Minneapolis-Moline today. *Distributed by John Morrell Manufacturing Co., a subsidiary of Minneapolis-Moline Co., Hopkins, Minnesota*



MY 40 MY 60 MOLINE-BUILT ENGINES M30 M40 M50 MT40

LIFT TRUCKS

MOBILIFT

MINNEAPOLIS-MOLINE COMPANY

Materials handling equipment • Farm machinery and tractors • Construction machinery • Power equipment • Engines • Electronics

Circle 69 on Reader Service Card

Erickson

AR-TIC-U-LA-TED STEERING

TURNS SHORT... LASTS LONG!

This articulated pivot (illustrated above) reduces turning radius to a minimum and gives the advantages of four-wheel steering. It entirely eliminates weaknesses and rapid wear common to complicated conventional steering mechanisms. It is similar to the system used on large, well-known earth movers.

Above is a typical Erickson Low-Lift Platform Truck. Standard models up to 10,000 lbs. capacity. Custom models up to 20,000 lbs. capacity. Platforms custom built up to 6 ft. wide, up to 24 ft. long.

Erickson Hi-Lift Platform Trucks have various platform sizes and lifts available. Stand-up cockpit (as shown) or operator's seat. Standard automotive controls are a feature of all Erickson Platform Lift Trucks.

ERICKSON the Workhorse of Lift Trucks

Erickson Kart-All materiel-personnel carriers are available with scissors-lift platforms. Airline model shown above has standard baggage bed, 4,000 lbs. capacity. Custom models built with beds up to 8 ft. wide by 24 ft. long, up to 12,000 lbs. capacity. Hydraulic outriggers obtainable for stabilizing Kart-All when loading or unloading heavy loads.

ERICKSON POWER LIFT TRUCKS, INC.

215 St. Anthony Blvd. N. E., Minneapolis 18, Minn.

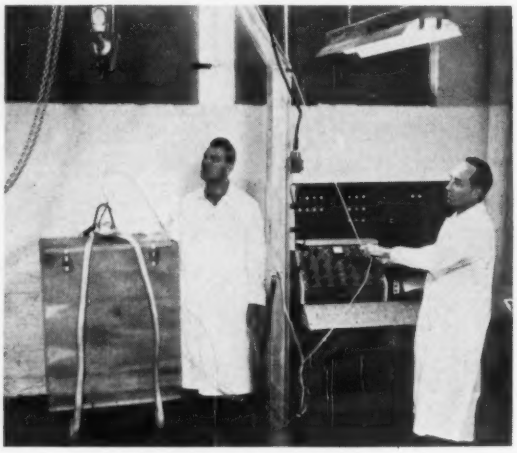
Circle 33 on Reader Service Card

NEWS ROUNDUP

started at the divisional level than by corporate directives. This was his main point at the 11th National Conference on Standards held in New York City. He said his company, starting in 1956, set up an engineering standards function in the general offices. Future plans include standardization efforts in packaging and material handling, maintenance, and tooling engineering.

4-ft. drops test packages

THE BLOCKSOM CO. recently perfected a new laboratory to test packages protected by molded rubberized curled hair. The firm says its engineers now can show cushioning efficiency with modern and foolproof test figures. They attach accelerometers to the product and the enclosing crate or drum. Readings then are taken after a 4-ft. free fall to a solid concrete block covered by a steel plate. This enables engineers to prescribe exactly the right cushioning regardless of package complexity.



Dutch exports feature lifts

THE NETHERLAND TRADE COMMISSION reports expanding foreign markets for its lifting and hoisting gear. The Netherlands exported nearly 13,000 tons, valued at $11.3 million, in 1959. The Dutch make all sorts of dockside cranes and transport installations. Their derricks helped clear the Suez Canal after the 1956 crisis. They sent a 520-ton floating crane to France for handling concrete blocks. To Spain went a 650-ton submarine raiser. And Sweden received a twin jib, level-luffing crane with 90-ton lifting capacity at a radius of 64 ft. The Netherlands also makes fork lift trucks, bucket elevators, hoists, winches, and other engineered elevators, hoists, and other engineered items.

Safe, fast, profitable way to lift, carry or place any load in 5-ton range

It's Austin-Western's economical new 3-wheel hydraulic crane! This versatile Model 110 is your answer to the limitations of fork lifts and conventional 3-wheel cranes. Why? Because of its 18-ft. 7-in. telescoping boom and 220° swing. The 110 can actually outlift all other 3-wheel cranes over-the-side. Its low 8-ft. 10-in. overhead clearance and the easy maneuverability of its dual tire, rear trunnion power steering permit it to work in even the tightest quarters with ease.

Other time and money saving features include dual front driving wheels; road speeds from 2 to 18 mph. Torque converter and full hydraulic reversing mechanism are standard. The 110 can be adapted to your particular job needs with various combinations of features and equipment. And it's designed and built for easy, economical, troublefree maintenance.

Why not take a good look at this versatile new piece of materials handling equipment. Ask your Austin-Western distributor for a demonstration or write us for details.

A-W hydraulic cranes are available in 5 models; capacity ranges from 5 to 11 tons!

Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

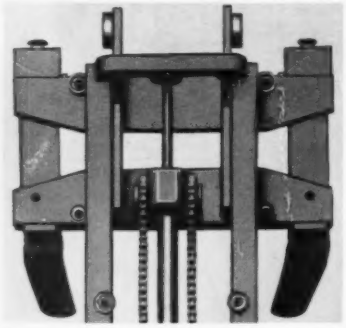
Power graders • Motor sweepers • Road rollers • Hydraulic cranes

Circle 3 on Reader Service Card

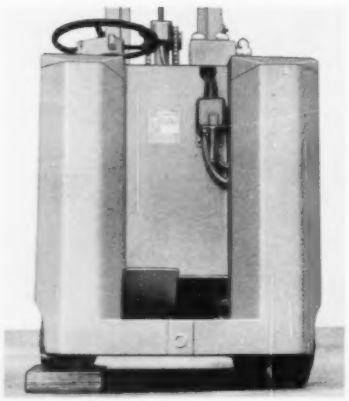
Circle 100 →

Compact K-47 Yale Electrics work in narrow spaces and low headroom areas

Easy battery change—Steering wheel unit pivots on steer shaft to permit hinged battery cover to be raised and detachable side plates to be removed for top or side replacement of battery.



Choice of three masts—Simplex (Yale standard), Duplex and Triplex. K-47 fork carriage permits easy installation of standard hydraulic attachments for specialized requirements.



Stability over uneven surfaces—Pivoted steering axle provides articulation to insure proper contact of all four wheels at all times.

• High lifting speeds • Shortest length for narrow aisle operation • I-beam mast construction provides high rigidity under all load conditions • Capacities 2,000 to 3,000 lbs.

To cut costs in car loading, dock handling and warehousing, consider Yale Electric K-47 Trucks. With fewer wearing parts, electric power reduces maintenance and down-time costs. The trucks are fast, safe, silent. Stand-up end control with low 7-inch step simplifies operator's on-and-off movements. Compactness of design permits truck to operate in minimum aisles with right angle stacking. You'll find exactly the Electric the job requires in Yale's complete line.

START SAVING NOW. Yale has flexible finance plans that will put this electric truck to work for you immediately. For more information see your Yellow Pages for name of nearest distributor. Or write us for his name.

Yale Materials Handling Division, Dept. K101, Phila. 15, Pa., A Division of The Yale & Towne Manufacturing Company

"Only one company can recommend the *right* truck for the application . . . the company that makes them all"

YALE

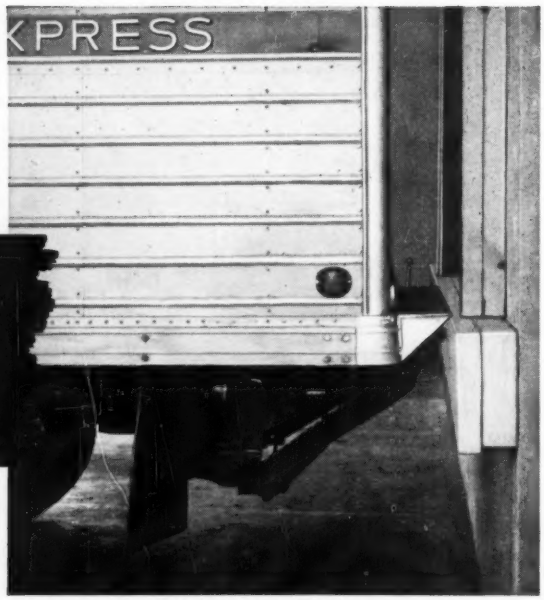
INDUSTRIAL LIFT TRUCKS
TRACTOR SHOVELS · HOISTS

YALE & TOWNE

T-98
OIL
SALADS
COOKING
FRYING
BAKING
V-8 VEGETABLE JUICES
YALE

How 3 National Fleets save Time and Money

with the WATSON Hide-A-Gate



PACIFIC INTERMOUNTAIN EXPRESS shows here how easy it is to dock load with a Hide-A-Gate. No need to lower the gate to open doors, or to run fork lifts over the gate platform—just back in tight to the dock and load or unload.

HIDE-A-GATE is the powered elevating tailgate that hides away under the bed when not in use. It gives you these important advantages:

1. **You can back up tight against a dock**
2. **You don't have to lower the gate to open van doors**
3. **It's easier to park in tight spots—no gate overhang or projections.**

And, of course, you get all the advantages of a fast, safe, reliable power gate for ground or curbside loading—at a touch of the control lever.

CONSOLIDATED FREIGHTWAYS' Hide-A-Gate gives this new van the advantage of power gate for ground or curbside loading—yet no gate interference when dock loading.

SHERWIN-WILLIAMS CO. find parking much easier on store deliveries with Hide-A-Gate—it folds under the bed with no overhang or projections until ready for use.

Hide-A-Gate handles loads to 1,200 lbs., is easy to install on 1½ ton and and larger trucks. Electro-hydraulic (6v or 12v) and power take-off models available. Why not get the facts **now**—write for literature, prices.

WATSON

H. S. WATSON CO.
1316 67TH STREET DEPT. 120
EMERYVILLE, CALIFORNIA
1606 LASKEY ROAD
TOLEDO 12, OHIO

Circle **95** on Reader Service Card

mhe COST CUTTING IDEAS

More Storage in Cramped Lumber Yard

Increased business and no room to expand. The yard of the Riemeier Lumber Co., Cincinnati, was hemmed in by railroad tracks on 2 sides and by a neighbor and a street at the ends.

The answer: More efficient handling and storage of lumber. A fork lift truck got the job. It stacks a lot of lumber every day, covers lots of ground doing it. And it saves a lot of time and manpower.

Average yard inventory is 3 million board ft. Nearly 650 carloads yearly come in by rail. Another 50,000 ft. arrive weekly by truck. The yard is 700 ft. long, tapers from 100 ft. wide to 20 ft. Two alleys run its length; one includes an 18-car railroad siding.

Most lumber received isn't in unit loads (strapped in neat bundles); must be unloaded by hand. The men unloading the lumber stack it into unit loads along the rail siding. Mixed car contents are separated.

The fork truck transfers the lumber from siding to storage yard, puts it into high stacks. Fork truck stacking is higher than hand stacking, increases storage capacity by a third. It's faster, takes less labor.

Delivery trucks are loaded by fork truck and by hand. Quantity orders are lift truck stacked and loaded. Small orders are hand loaded because of variety in sizes and lengths.—*Hyster Co.*

Circle **250** on Reader Service Card

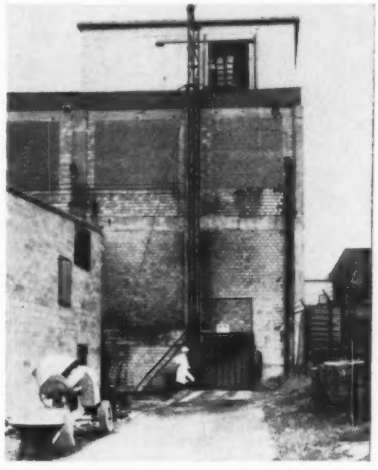
Hoisting Machine Gives $8,000 Annual Savings

A large meat packing firm borrowed an idea from the construction industry and reports an annual savings of $8,000. Marhoefer Packing Co., Inc., Muncie, Ind., was troubled by overcrowded freight elevators and unnecessary traffic flow through the plant.

According to vice president G. W. Blevens, an employee told about a hoisting machine he'd seen at a building site. He thought one outside the Marhoefer buildings would considerably reduce traffic congestion inside various departments and in the freight elevators which were real bottlenecks.

First they bought a hoisting machine for the packaging storage loft. Later, they bought one for the tank house. They cost $8,000, and the company saved that much in a year's savings in time and manpower alone.

Each Marhoefer machine is electrically operated and push-button



controlled, has 2,000-lb. capacity, operates at 65 feet per minute speed.

The hoist used for storage of boxes and packaging materials operates to 40-ft. height. The second hoists inedibles to a height of 20-ft.—*Buck Equipment Corp.*

Circle **251** on Reader Service Card

Continued on page 22

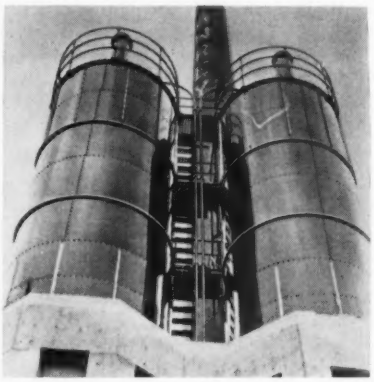
COST CUTTING IDEAS

System Pays For Self In 20 Months

Awrey Bakeries, Inc., Detroit, converted to a bulk flour receiving and pneumatic conveying system. The receiving system handles 30,000 lb. of bulk flour an hour. The inplant pneumatic conveying system has 20,000-lb.-an-hour capacity.

Awrey claims that the bulk storage structures, and the combined conveying systems, paid for themselves in 20 months. Savings came from reduction in intercity delivery costs, buying flour in bulk, reduction of material handling costs, no flour bags to buy, and less maintenance and housekeeping.

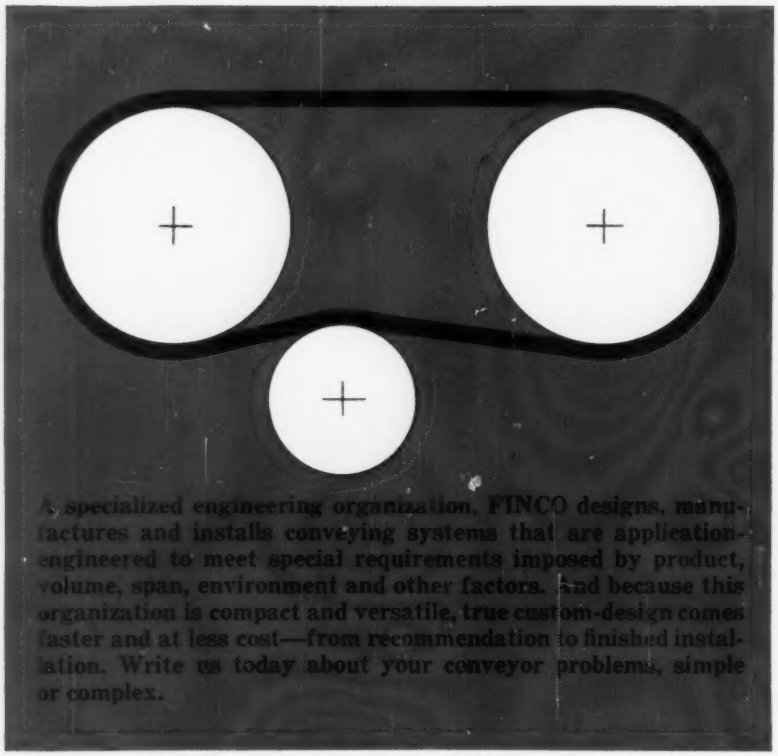
One of the outstanding features of the inplant system is the hollow-flight, steam-jacketed screw conveyor. It's designed to heat 20,000 lb. of wheat flour an hour to a selected temperature.



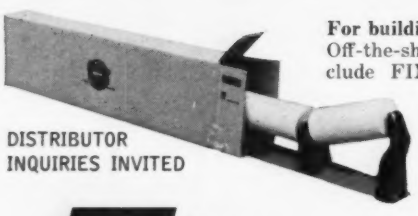
The two bulk storage structures with hopper bottoms (photo) are on the roof of the two story Awrey building.—*Harvestore Products, A. O. Smith Corp.*

Circle **252** on Reader Service Card

Finco Custom-Engineered Conveyors for heavy dry/bulk handling



A specialized engineering organization, FINCO designs, manufactures and installs conveying systems that are application-engineered to meet special requirements imposed by product, volume, span, environment and other factors. And because this organization is compact and versatile, true custom-design comes faster and at less cost—from recommendation to finished installation. Write us today about your conveyor problems, simple or complex.



DISTRIBUTOR INQUIRIES INVITED

For building your own conveyor units: Off-the-shelf conveyor components include FINCO troughing and return idlers, stringer sections, hoods, pulleys, belting, etc. Write for BELT CONVEYORS AND IDLERS bulletin.

Finco inc.

525 Rathbone Avenue, Aurora, Illinois • U.S.A.

Circle **36** on Reader Service Card

Fork Trucks Speed Parts Handling

With a pair of fork trucks to service its highspeed, automated metal plating machines, Bellevue Plating Company, Detroit, is able to plate over 90,000 lb. of parts a shift.

The trucks are of 3,000-lb. capacity, and they:

Handle large volumes.

Maintain tight delivery schedules.

Avoid handling delays.

Handle raw materials and finished goods.

The trucks feed parts to a 30-barrel automatic cadmium plating machine. It has a capacity of feed a 24-barrel automatic zinc 50,000 lb. a shift. The trucks also

plating machine. It has a capacity of 40,000 lb. a shift.

Raw materials are weighed, sampled, and placed on pallets. A fork truck picks up each pallet load, delivers it to conveyors, which feed the two plating lines.

Parts arriving in the morning are plated and shipped the same day. Plated parts leave in the containers they came in.

Containers of finished parts are palletized as they come off the end of the plating line. They go to shipping docks and are loaded into trucks by fork trucks.—*Clark Equipment Co.*

Circle **253** on Reader Service Card

Low Cost Moisture-Free Storage

The Martin Co., Baltimore, makes aircraft parts. They use polyethylene film huts for inexpensive

moisture-free storage.

They built 8 huts in one of their Baltimore plants. Each covers 3,200 sq. ft., encloses a 29,000 cu. ft. They, by removing 124 lb. of moisture, reduced the relative humidity in 6 days to a safe level. Columns support the huts. Martin considered air-supported huts, but there was too much in-and-out traffic.

Martin finds these big advantages: adaptability, moisture free protection and low cost.—*Plastics Division, Visking Company.*

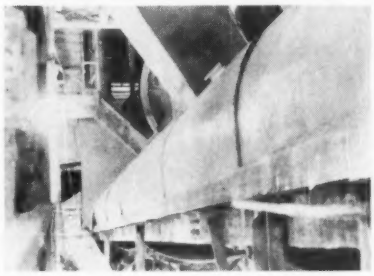
Circle **254** on Reader Service Card

Maintenance Free Ventilating System

A reinforced plastic ventilating system and conveyor housing performs outstandingly in the severely corrosive conditions of a triple superphosphate granulation unit.

The housing withstands fumes from crushed superphosphate rock.

The conveyor housing is a semicircular hood. It has removable

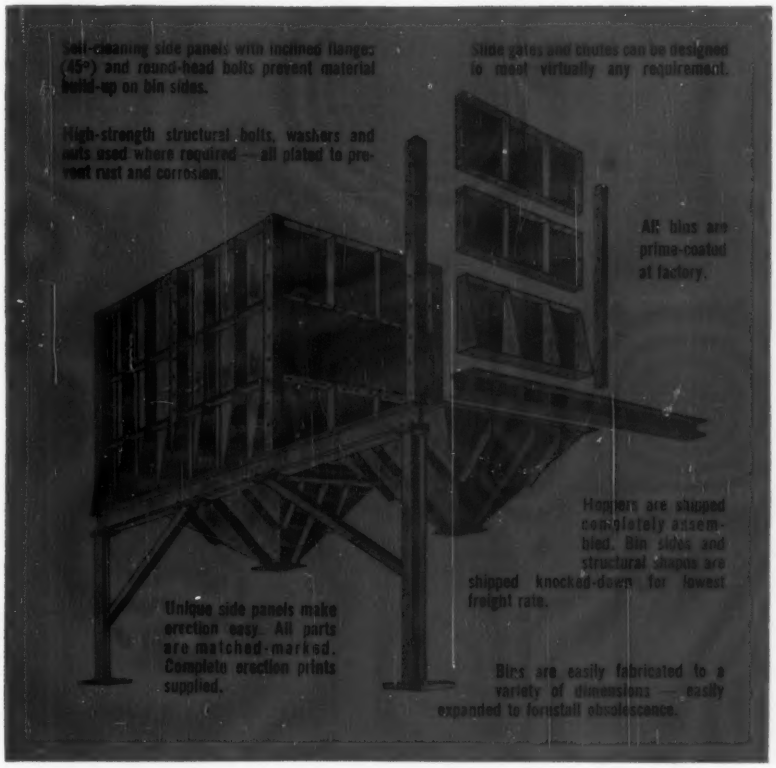


covers over the conveyor. The conveyor transports superphosphate from the granulation process. Openings in the top of the hood at regular intervals receive phosphate rock from chutes suspended over the conveyor. Collecting hoods at each end of the conveyor connect to ventilating ducts. They exhaust the gases through a tetrafluoride fume scrubber.

The system has been running maintenance free over 18 months. It requires less support because of its light weight, yet it has good

Continued on Page 24

Expandable, Bolted Finco-Engineered Storage Bins


Self-cleaning side panels with inclined flanges (45°) and round-head bolts prevent material build-up on bin sides.
Slide gates and chutes can be designed to meet virtually any requirement.
High-strength structural bolts, washers and nuts used where required — all plated to prevent rust and corrosion.
All bins are prime-coated at factory.
Hoppers are shipped completely assembled. Bin sides and structural shapes are shipped knocked-down for lowest freight rate.
Unique side panels make erection easy. All parts are matched-marked. Complete erection prints supplied.
Bins are easily fabricated to a variety of dimensions — easily expanded to forestall obsolescence.

Heavy-duty, all-steel Finco Bolted Storage Bins are engineered by specialists to meet a variety of requirements: grain, salt, sugar, sand, gravel, coal, cement and other dry-bulk materials. They're easily erected, easily expanded. Write for new FINCO BINS specifications folder.

Finco inc.

525 Rathbone Avenue, Aurora, Illinois • U.S.A.

Circle **110** on Reader Service Card

HOW to move barrels and drums in less time for less money!

Nutting has the right equipment to do the job SAFER, EASIER, FASTER!

Fig. 1501-X

NUTTING BARREL TRUCK — Quick "Auto-load" design. Special "retractable" running gear eliminates deadweight lifting. Stands alone empty or loaded. Safety engineer approved.

Fig. 526-A

NUTTING BARREL STAND — Rocker type frame and beveled nose for safe, easy load pickup and discharge. Provides mobile storage, full flow drainage, eliminates dangerous lifts and spillage.

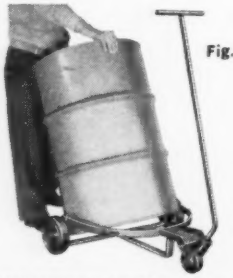
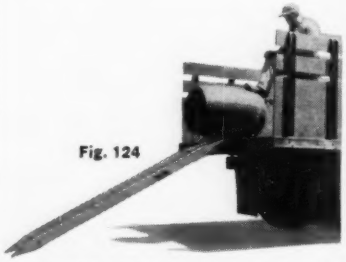


Fig. 546

NUTTING BARREL TRUCK — Transports open top barrels in safe, vertical position. Easily loaded underslung frame. Full swivel castered handle for easy maneuvering.

Fig. 124



NUTTING BARREL SKID — Affords safe movement from one level to another. Non-slip grapple hook. Available in 5 lengths. Made of oak or hickory with steel clad ends, round steel cross bars.

The quickest, fastest, safest way to move barrels is to use the *right* equipment. Nutting has the most complete line made for this purpose. In addition, Nutting also makes over 1,000 standard models of other types of equipment, including 2-wheel, platform, shelf and box trucks; jacks and skids, trailers, casters, and wheels. Hundreds of trucks which many other companies classify as "specials" are *standard* with Nutting. This means you can often get "custom" type trucks at production line prices from Nutting!

GET ALL THE MONEY-SAVING INFORMATION TODAY ABOUT NUTTING EQUIPMENT. MAIL COUPON NOW.

Nutting

MEMBER CASTER AND FLOOR TRUCK MANUFACTURERS ASSOCIATION

TRUCK AND CASTER COMPANY
104 Division Street
Faribault, Minnesota

Please send information on Nutting trucks for handling _____.

Please send information on FIG._____.

☐ Please send literature.

☐ Please have a Nutting representative contact me.

NAME_____

ADDRESS_____

CITY_____STATE_____

Circle **65** on Reader Service Card

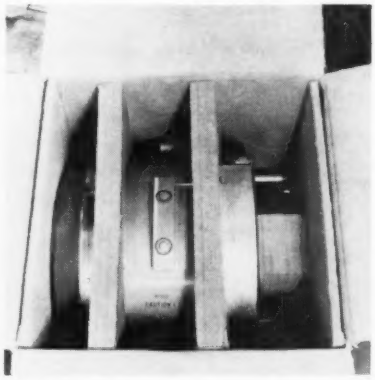
COST CUTTING IDEAS

tensile and impact strength. The tensile strength of the glass reinforced plastic is from 11,000 to 15,000 psi and flexural strength is from 20,000 to 30,000 psi.—*The Ceilcote Co.*

Circle **255** on Reader Service Card

Packaging Cost Cut In Half

Westinghouse Electric Corp. now ships 188-lb. torpedo motors in a container that weighs only 18 lb. and costs 47 percent less than



the old pack. It's a 1,100-pound-test, triwall corrugated carton.

These are the savings:

- 57 percent in labor.
- 38 percent in material.
- 51 percent in tare weight.
- 27 percent in cubage.
- 9 percent in transportation.

Industrial fiberboard pads and cradles block the motor in place. Square head nails hold 2" x 4" runners to the bottom of the carton. The flaps are closed and the carton is steel strapped so that the cradles cannot shift.—*The Celotex Corp.*

Circle **256** on Reader Service Card

Palletless Handling Increases Efficiency

A lift truck equipped with a hydraulic clamp attachment to handle cartons and cases of goods reduces handling costs. Thriftimart, Inc., a

Continued on page 26

"In the SCOT"

you get all the advantages of the Electric Type...and

PATENTS PENDING

THEN SOME!

YOU GET THESE ADVANTAGES, OF COURSE:

- Acceleration
- Safety, less operator fatique
- Less down time
- Much lower maintenance
- Quiet, clean, fumeless operation
- Lower insurance
- *Huge savings over the long term*

IN THE SCOT YOU GET ALL THESE EXTRA ADVANTAGES... AT NO ADDITIONAL COST:

- 52" turning radius
- Top speed and power in its class in both travel and lift—20% gradeability
- Unitized construction
- Maximum visibility
- Fewest moving parts
- Unrivalled accessibility (see illustration) and savings in maintenance
- Guarantee for one year on parts and service assured by a 38-year-old organization
- Finest trade name components obtainable

All SCOT controls are mounted on the underside of the top cover for instant get-at-ability.

JAMES CAMPBELL SMITH

THE MARK OF JCS QUALITY

INCORPORATED
WILLOUGHBY, OHIO

PAY ONCE FOR YOUR TRUCK AND BE SCOT-FREE OF MAINTENANCE

Circle 84 on Reader Service Card

MERCK, SHARP & DOHME INCREASES ORDER PICKING EFFICIENCY

Standardization to Chainveyor power and free overhead conveyors, for order picking throughout 12 national warehouses, sharply reduced manual handling and increased work flow. Orders are filled from first in — first out racks, placed in carriers suspended from free conveyor track and propelled manually down aisles between stock racks. Upon completion, loaded carriers are picked up by an enclosed powered chain which parallels the free track, and are automatically transported to the packing and shipping department. Empty carriers from shipping are returned automatically to overhead storage.
Result: more orders in less time, plus open uncluttered aisles.

Accomplishments demonstrated by this and other Chainveyor installations in all types of industry offer infinite opportunities for reduction of cost and increased profits.

Write for details on low cost conveyor systems engineered for any industry.

QUALITY OVERHEAD CONVEYOR SYSTEMS

CHAINVEYOR®
CORPORATION

Engineers & Manufacturers

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MAIN OFFICES • 5618 East Washington Blvd.
Los Angeles, California

Circle **26** on Reader Service Card

COST CUTTING IDEAS

Los Angeles produce warehouse uses one and says it:

- Handles faster and cheaper.
- Reduces damage to goods.
- Improves housekeeping.

The truck has cushion tires. It steps up the handling pace by

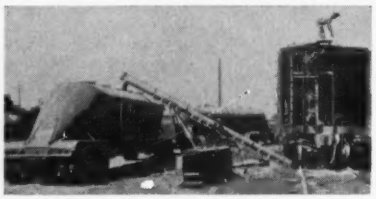
hauling larger loads faster, increasing tonnage handled a manhour. It enabled Thriftimart to increase its volume of goods handled without extra labor.

The warehouse serves 50 retail stores. Tons of fruit and vegetables are received daily by rail and truck. Palletless handling has replaced hand trucks. Officials say that to maintain the new rate with the old method would require at least double the warehouse crew now employed.—*Hyster Co.*

Circle **257** on Reader Service Card

Portable Equipment Speeds Unloading

Sinor Brothers, a Locust Grove, Okla., construction company, had to deliver tremendous quantities of

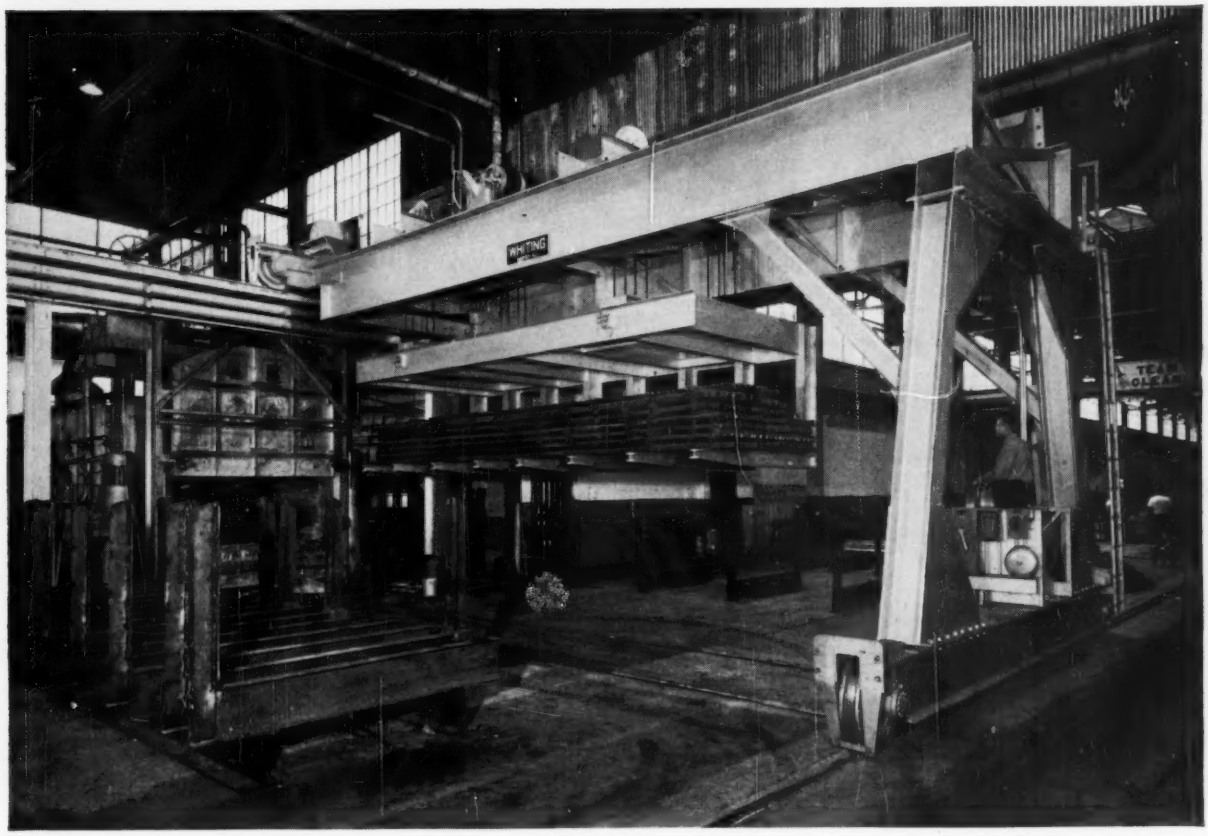


cement to a dozen missile sites hundreds of miles apart.

Faced with either setting up 12 different unloading operations, or choosing portable equipment, Si-

Continued on page 28

WE WORKED TOGETHER WITH BLISS & LAUGHLIN TO BOOST FURNACE CAPACITY 20%



The Whiting gantry crane **above** relieved a staggering bottleneck at Bliss & Laughlin's busy mill in Harvey, Illinois. Four heat treating furnaces are now speedily loaded and unloaded in contrast to a system that was arduous, time-consuming and costly. The new gantry has stepped up furnace capacity over 20% and cut maintenance on furnaces and loading cars. B.&L.'s service to customers has greatly improved.

A simple solution? Yes. But B.&L. engineers had been nettled for years by the heat treating log jam. They considered many possibilities including lift trucks.

There is a kind of "togetherness" that operates between Whiting and our customers and the solution Bliss & Laughlin found is an example of how it works. We may be able to help you too—and what we recommend, we back up by product performance. Let's get together.

Want details? Write for brochure No. 93 Whiting Corporation, 15659 Lathrop Ave., Harvey, Illinois

See our catalog in Sweets

90 OF AMERICA'S "TOP HUNDRED" CORPORATIONS ARE WHITING CUSTOMERS

CRANES **WHITING**

MANUFACTURERS OF CRANES; TRAMBEAM® HANDLING SYSTEMS; PRESSUREGRIP; TRACKMOBILES®; FOUNDRY, RAILROAD, AND SWENSON CHEMICAL EQUIPMENT

Circle **98** on Reader Service Card

NARROW MINDED

RAYMOND®

Narrow Aisle Trucks

RAYMOND Trucks are narrow minded where aisle widths are concerned. The truck we've illustrated, for instance, is tiering in an aisle just 6½ feet wide. Yet there's ample room to pick up or deposit loads in racks extending 20 feet high. A counterbalanced truck, by contrast, would have required an aisle 4 to 6 feet wider . . . wasting valuable floor space and sacrificing storage capacity.
Write for a copy of our latest catalog, "RAYMOND Narrow Aisle Handling Equipment". It contains ideas that may suggest substantial dollar and space-savings for your operation.

RAYMOND®

The originator and largest builder of narrow aisle trucks

Lease-Rental Plans Available for all RAYMOND Equipment.

The RAYMOND CORPORATION
3323 Madison St., Greene, New York
Please send "RAYMOND Narrow Aisle Handling Equipment"

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ STATE _____

Circle **75** on Reader Service Card

COST CUTTING IDEAS

nor decided on the economies of the portable.

They leased 5 units worth $10,000. They quickly and easily moved them from site to site as pouring was completed.

The main unit in each unit was a gasoline-powered portable conveyor, 30 feet long with 9-inch screw delivering 720 barrels of cement hourly. It attaches easily beneath the hopper of a car, and discharges directly into the top of the truck. A portable generator at each site furnished electricity for a vibrator. The vibrator attached to the car hopper kept material flowing at top capacity.

Sinor reports: "The set-up was so simple that each unloading operation was run by one man. Beside the money saved on labor and equipment, we also conserved our capital through leasing."—*Andrews Machine Co.*

Circle **258** on Reader Service Card

Economy Vehicles Handle Mail

The Post Office is testing twelve 3-wheel, electric-powered vehicles for mail delivery.

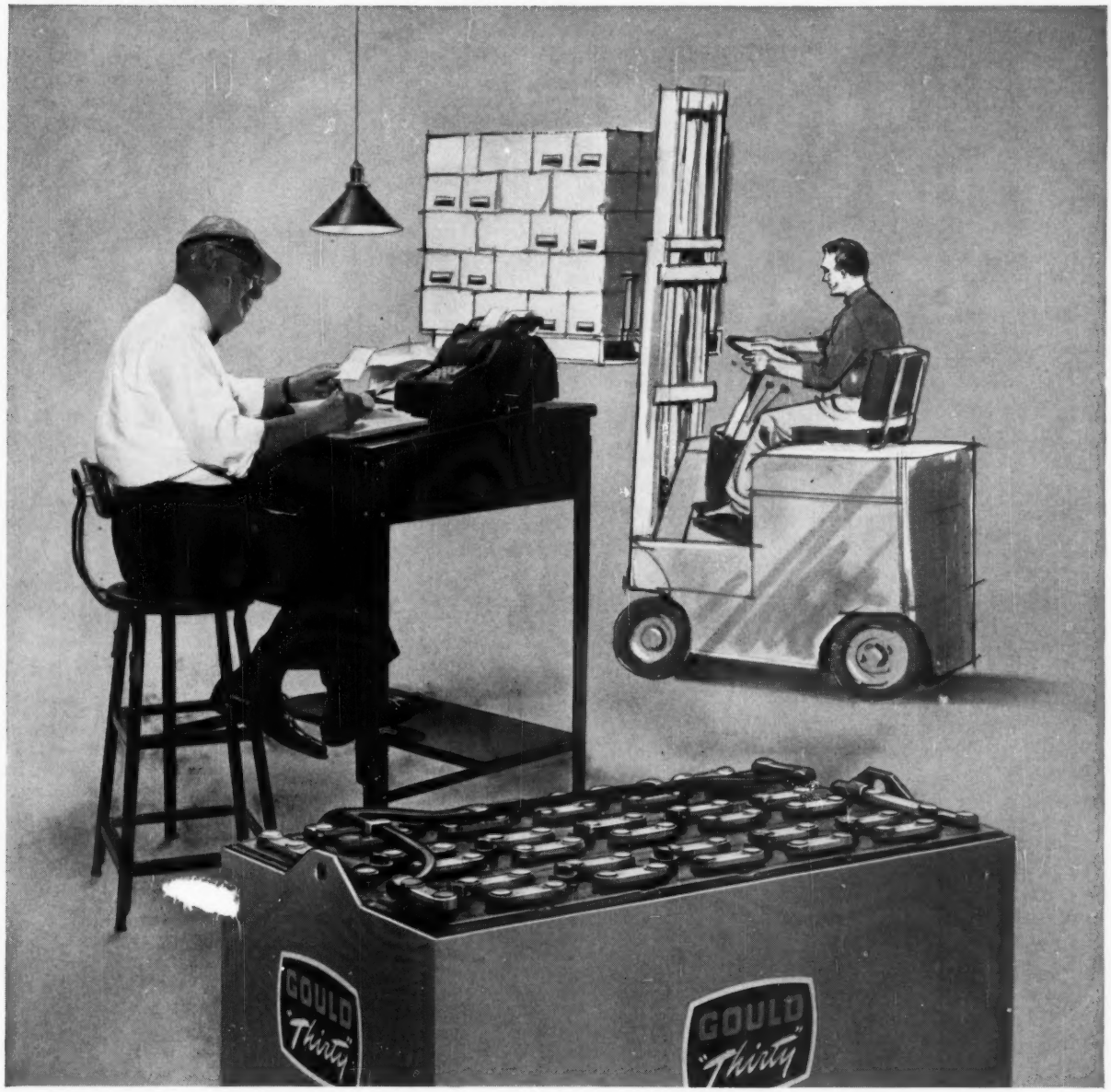
They have to make 500 starts and stops a day. Post Office figures show that the trucks cost 3¢ a battery hour to operate.

At the end of the day, the driver recharges the truck by merely plugging it into a 100-volt electric outlet. The body tilts backward for easy servicing.

Other features: the door on the curb side; easy maneuverability; quiet operation; right-hand steering so that the driver doesn't have to leave the cab on rural routes; operating costs stop when the truck is standing still for traffic lights, delivery, and pickup.

The trucks measure 47½" wide, 110" long, and 68½" in height. Speed: up to 18 mph forward and 6 mph reverse. Panel on left side comes off, can be replaced by a curtain during summer.—*Cushman Motor Works.*

Circle **259** on Reader Service Card



Electric Trucks COST LESS TO OPERATE

Battery-powered electric trucks save in the three most important areas of cost breakdown: maintenance, fuel and depreciation. The electric truck effects economies in power and maintenance costs so substantial that their overall cost per ton-mile is less than half that of other types of trucks.

Add lower operating costs to a convincing list of other benefits—maneuverability, clean, quiet and safe operation, less maintenance—and you can easily see the main reason why users prefer battery-powered electric trucks for modern, efficient materials-handling jobs of all types.

Electric truck users generally agree on one other point, too—Gould Batteries for longer life. With the new Silconic Plate, Gould Batteries offer up to 25% longer life.

Join the list of users who prefer this ideal combination of electric trucks and Gould Batteries. For more information, write or call your local Gould representative. Ask for booklet "Why We Use Battery-Electric Industrial Trucks." Gould-National Batteries, Inc., Trenton 7, N. J. In Canada, write to Gould-National Batteries of Canada, Ltd., 1819 Yonge Street, Toronto, Ontario.

More Power to you from **GOULD**

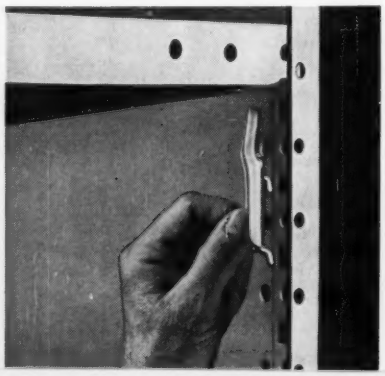
Circle 43 on Reader Service Card

WILSON SPORTING GOODS CO., the Nation's leader in the manufacture of sporting goods equipment, used Republic METAL LUMBER in constructing 35,136 cubic feet of custom-built storage at the River Grove, Illinois, distribution center. Racks can be unbolted, bin sizes changed, intermediate pallet rests installed, quickly and easily to meet changing storage requirements.

SMALL SECTIONS OF METAL LUMBER were used as hold-down brackets to anchor the framing to the floor. No wasted material. Republic METAL LUMBER is ideal framing material for building strong and sturdy work benches, cat-walks, ramps, ladders, and other framing assemblies tailored to your specific needs. Bonderized finish reduces maintenance costs, too.

REPUBLIC STEEL LOCKERS give change, wash, and dress centers a new look, protect employee valuables and tools. Available with popular locking devices. Bonderized. Republic will help you with your locker planning, and assume full responsibility for installation. Send coupon.

REPUBLIC CLIP SHELVING is designed to ease and speed erection, to provide quick rearrangement of parts without disassembling the unit. Strong, sturdy, rigid installation every time. Compression type clip securely holds shelf in place without bolts or special adapters. Write today.



REPUBLIC MATERIAL HANDLING UNITS save time, simplify stack, store, ship operations. Heavy duty stacking brackets and corrugated construction combine to deliver long, efficient safe service at low per year cost. Republic material handling specialists work with you. Call or write.

Wilson Sporting Goods Co.
stores 1,001 sizes and shapes with

Republic METAL LUMBER

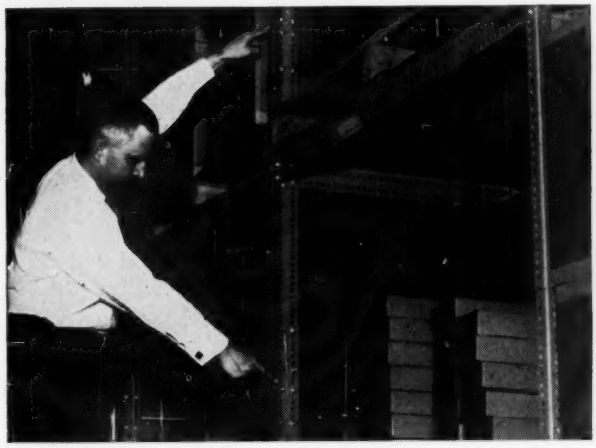
. . . building product of 1,001 uses!

How to store 1,001 different items of different sizes, different shapes, was solved by the Wilson Sporting Goods Co. by using Republic METAL LUMBER in designing a modern distribution system at their River Grove, Illinois, plant.

Wilson set up a high ceiling (22 feet), live-storage area, uncluttered by partitions and served by lift trucks. Just over four miles of .104 gage Republic METAL LUMBER was used in constructing 35,136 cubic feet of storage space, 612 feet of racks 16½ feet high, bins 3- and 4-feet deep.

According to Wilson's warehousing experts, this system gives them more usable storage space, plus safety for both men and merchandise. The hazards of pallet-load piled on pallet-load of the old system were eliminated.

METAL LUMBER is easy to use. Simply measure, cut, assemble. Engineered pattern of slots speeds erection, reduces time and material costs. Available in two gages, two widths, in standard bundles of 10- or 12-foot lengths. Call your Republic representative. Or, send coupon for attractive brochure.



ADDED STRENGTH was achieved by splicing small lengths of METAL LUMBER to framing members. METAL LUMBER is never obsolete. Its cut-and-join simplicity makes quick assembly possible even with unskilled labor. Its reusable features further reduce costs. Republic METAL LUMBER may be your answer to difficult framing problems. Try a bundle and see.

WILSON'S SOLUTION to more storage space was a pallet rack system constructed of Republic METAL LUMBER. An overhead trolley chain running around a perimeter aisle pulls floor trucks to the main aisles. Lift trucks are used to stack and store, and load and ship orders from the more than 1,000 different items on the shelves. Service, efficiency, economy.

REPUBLIC STEEL

World's Widest Range
of Standard Steels and Steel Products

STRONG . . . MODERN . . . DEPENDABLE

REPUBLIC STEEL CORPORATION
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1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

Please send more information on the following products:

☐ Republic METAL LUMBER® ☐ Republic Steel Lockers
☐ Clip Shelving ☐ Republic Material Handling Units
☐ Have representative call

Name_____ Title_____

Firm_____

Address_____

City_____ Zone____ State_____

Circle 74 on Reader Service Card

▲ PROTECTION for intricate parts!

CLEVELAND CONTAINERS

Save You Money—TWO Ways!

Above is a metal end telescope container designed to package a rotary group for an hydraulic oil pump. Both ends of the shaft are further protected with paper tubes. This type of container is applicable for light and heavy parts. Correct package engineering assures money saving PROTECTION for a precision part...with the additional economy of LOW UNIT COST!

▼ SHOULDERS to lean on!

Illustrated on the left is an all-paper container with a die-cut disc fitted into each of the paper cap ends.

This design accommodates a quantity of thin gaskets assembled over a paper tube... performing the dual function of protecting the product in shipment while serving as a merchandising aid. Similar containers are also suitable for rubber gaskets, washers, shims, rubber or wire coils.

Write for our latest Packaging Brochure!

THE

CLEVELAND CONTAINER

COMPANY

Plants and Sales Offices:
Cleveland
Detroit
Chicago
Memphis
Dallas
Los Angeles
Plymouth, Wis.
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6201 BARBERTON AVE. • CLEVELAND 2, OHIO

ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LIMITED
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Rochester, N. Y.
West Hartford, Conn.
▪
Abrasive Division at Cleveland

Circle 19 on Reader Service Card

CALENDAR OF EVENTS

January 10

Annual meeting
Hoist Manufacturers Association
Statler Hilton
Cleveland

January 23-26

Plant Maintenance & Engineering Show
International Amphitheatre
Chicago

February 2-4

Ninth Annual Material Handling Short Course
School of Industrial Engineering and AMHS
Georgia Institute of Technology
Atlanta

February 13-17

AMA Packaging Management Course
Hotel Astor
New York

February 22-24

MHI Pacific Coast Show
Cow Palace
San Francisco

February 23-24

62nd Annual Meeting
National Wooden Box Association
Boca Raton Hotel & Club
Boca Raton, Florida

February 27-March 3

4th Annual Midwest Work Course on Material Handling Analysis
The Kansas City Center
Kansas City. Kansas

March 20-31

Industrial Packaging Course
Purdue University
Lafayette, Indiana

TOUGH MATERIAL SPECIALIST—

The Model 12B Michigan

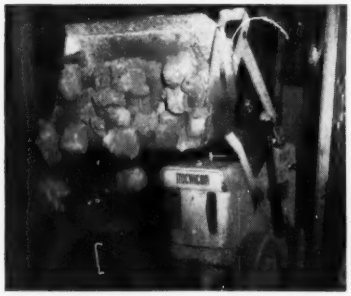
CHROME and CARBORUNDUM ORE are unloaded fast by this 16 cu ft Model 12B. Owner. New York Central RR. Location: Jersey City.

Like all Michigans, the 12B has efficient all-Clark power train, including power-shift transmission, torque converter, planetary-wheel drive axle.

BROKEN GLASS reclaiming is the prime use of this Michigan Model 12B owned by Fairmount Glass Works, Indianapolis, Indiana.

BROKEN TILE, 400 tons per 8 hour day—that's the output of the two 12B's owned by Oconee Clay Products Co., Milledgeville, Georgia.

DOLOMITE, charged directly into red-hot open hearths, is this Michigan's tough, but successful assignment in this Illinois steel plant.



COKE, used by American Brake Shoe Co, Buffalo, is dumped into hopper. Note cramped quarters easily negotiated by the Model 12B.

FERTILIZER, tight-packed and hard to dig, yields to powerful Virginia-owned Model 12B. Note the heaped bucket, a "trademark" of all Michigans.

Your "tough jobs," too, are made to order for Michigan Tractor Shovels. Model 12B capacity is 3,000 lbs, buckets are available to carry from 6 to 27 cubic feet. Write for details.

Michigan is a registered trademark of

CLARK EQUIPMENT COMPANY
Construction Machinery Division

CLARK EQUIPMENT

2445 Pipestone Road
Benton Harbor 34, Michigan
In Canada:
Canadian Clark, Ltd.
St. Thomas, Ontario

Circle 9 on Reader Service Card

PRODUCT NEWS

New Bulk Shipper Holds Liquids, Pastes, Grains

New entrant to the bulk container field is Nest-A-Bin. It's reusable, made of aluminum, holds liquids, pastes, or granular materials. Largest diameter is 52¾ inches, overall height runs from 63¾ to 91½ inches, depending on the model. Tare weight averages 192 lb.

Empty, Nest-A-Bins separate into halves that clean fast and nest inside each other like paper cups (right in picture) to reduce space needs by 75 percent.

A clamp ring around the bin's equator joins the cylindrical halves that look like huge tubs. The ring resists impact, keeps containers from overriding one another, prevents damage in transit. It's made of high-tensile chrome steel.

A hermetic seal retains bin's contents, halts contamination from the outside. The container is approved under the 1958 Food Additives Amendment to the Federal Food, Drug and Cosmetics Act. Special coatings available for use with most chemicals.

All models have pallet bases, handle readily by fork truck. The square top model on the truck in picture handles all types of liquids, comes in 440, 550, and 660 gallon sizes, all with ball valves. Those with cone-shaped tops are for granular materials. They come in 54 and 70 cu. ft. capacities, both with a 22½-inch opening. Cone angle is 70° for fast, complete dumping without bridging. All containers are stable through 34° angle of tilt.

The bins have been tested on all types of carriers and performed well. LCL shipments with K-type bracing took rail humping impacts exceeding 11 mph without damage. Controlled floating loads secure easily and fast in boxcars, gondolas, or flatcars with minimum bracing. One operator rapidly loads and unloads them. Standard dock and stevedoring equipment suffices for air and water shipping.

Kaiser Aircraft & Electronics

Circle **300** on Reader Service Card

Dozer Converts to Front-End Loader

Optional conversion package changes rubber-tired Paydozer, model D-

120, from a 12′-4″ blade to a front-end loader. Package includes bucket, boom arms, hydraulic lines, etc. Change takes less than two 8-hour working days, maker says. Tires: 26.5 x 25, 14-ply rating, dry-ballast filled for low machine center of gravity. Turbo-charged diesel engine, 300 hp. Four-wheel drive, power-differential (both axles) favors wheel with best traction.

Frank G. Hough Co.

Circle **301** on Reader Serviec Card

No Seams in Belt

Woven-carcass rubber conveyor belt is vulcanized into endless unit in the field. No hooks or fasteners. Features nylon-reinforced cotton yarn woven in interlocked pattern that resists cover separation under severe

use. Excellent resistance to cuts and bruises in ore and hard-rock mining, says maker. Industrial Uniflo belts also have application in crushed stone, sand and gravel, steel, cement, foundry industries.

Goodyear Tire & Rubber Co.

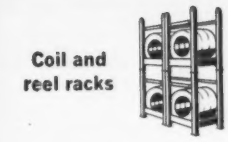
Circle **302** on Reader Service Card

For more PRODUCT NEWS turn to page 90

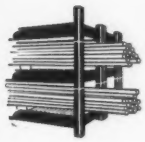
EMI

GET EXACTLY WHAT YOU WANT FROM THE MOST COMPLETE RANGE OF STORAGE AND MATERIAL HANDLING RACKS IN THE INDUSTRY!

Air-Row Head fully adjustable pallet racks.
SNAPS IN, LOCKS IN, NO LOOSE PARTS!



Coil and reel racks



Bar, pipe and tube racks

Stock boxes —solid or KD

Portable stacking racks

If you have a special problem, we will design racks to your exact specifications.

METAL WORKING FACILITIES

EMI offers complete metal working facilities including tubular, structural and special shapes.

YOU CAN STACK OR SHIP *ANYTHING* ON EMI RACKS

Write for our complete catalog!

EQUIPMENT MFG. INC.

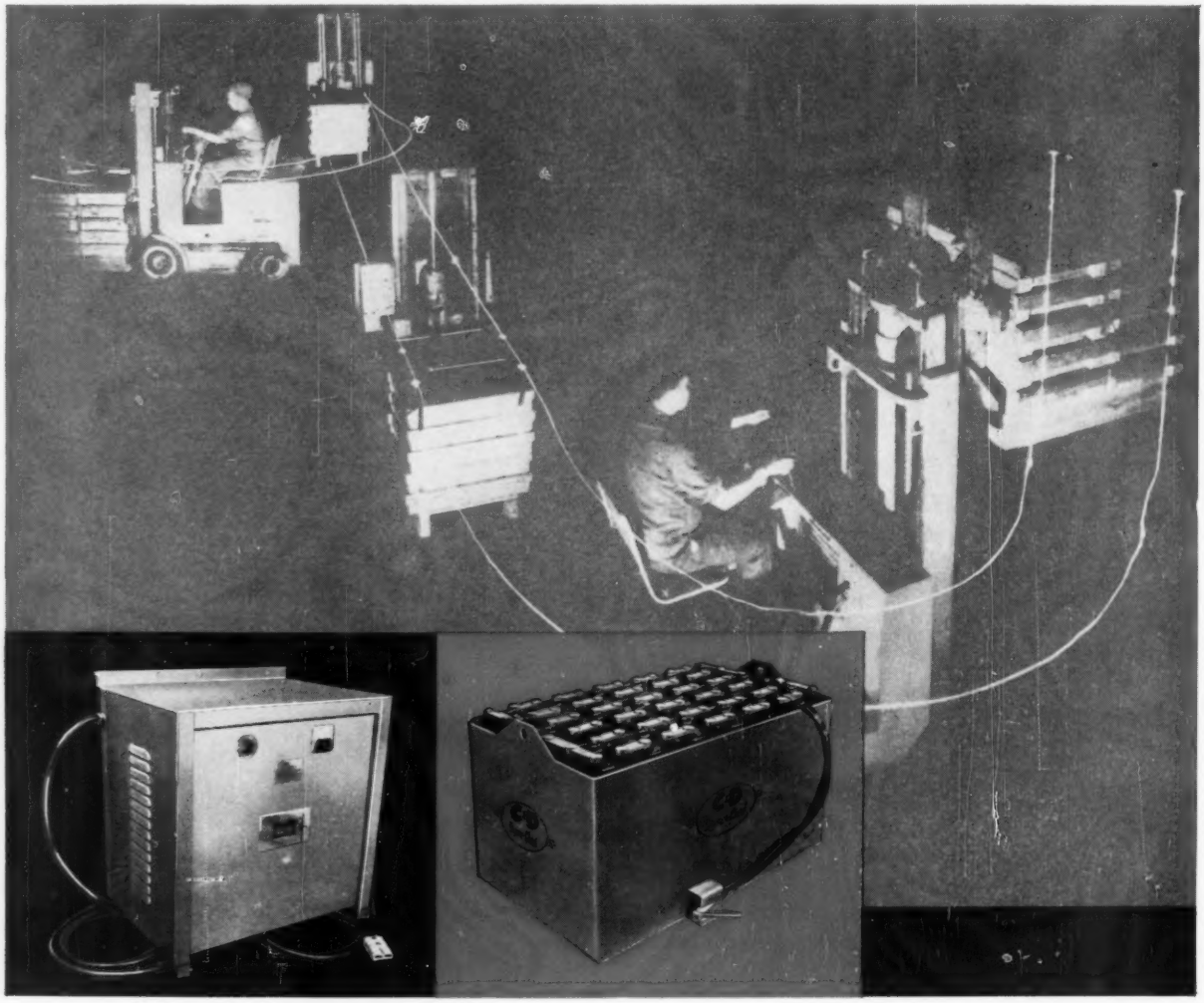
21552 HOOVER ROAD • DETROIT 5, MICHIGAN

Circle 32 on Reader Service Card

productivity

When you power the best in trucks, electric — with the best in batteries — C & D Slyver-Clad you get productivity in materials handling. ■ Electric trucks are easier to maneuver; run smoother, inch at a touch, start and stop on a dime. Investigate and you'll find they cost less to own, run and maintain. ■ C & D Slyver-Clad batteries are the finest power package available for any electric truck. Five separate layers of insulation and retention keep active materials in place. Life shortening, sediment build-up is virtually eliminated. A C & D exclusive, Hi-Impac cell containers and covers, greatly reduce breakage of these elements. ■ C & D AutoReg chargers with Slyver-Clad batteries complete the perfect power team. AutoRegs are highly efficient, simple to operate and have no relays to adjust. Operation does not require trained personnel. A unique charging circuit, incorporating a hermetically sealed silicon rectifier, automatically supplies the required charging current and increases battery life expectancy. Because the rectifier doesn't age, aging taps and the need for adjustments are eliminated. AutoReg chargers are ideal for any type of plant layout. They may be wall, balcony or floor mounted. Smaller models can be truck mounted. All AutoRegs will improve the performance of any make battery. ■ Regardless of the nature of your truck fleet—hand, rider, or combination of both—you'll get greater productivity by combining Slyver-Clad batteries and AutoReg chargers. For complete details write for AutoReg and Slyver-Clad bulletins.

For productivity in materials handling—use high-speed electric trucks powered with C&D *Slyver-Clad*® batteries—charged by *AutoReg*®



C&D BATTERIES
of Conshohocken, Pa.
DIV. THE ELECTRIC AUTOLITE CO.

Manufacturers of Slyver-Clad® Industrial Batteries • PlastiCell® and PlastiCal® Batteries for Communications, Control, and Auxiliary Power • Producers of AutoReg® Silicon Chargers and AutoCal® Charger Battery Combinations
®Trademark

Circle 17 on Reader Service Card

Material Handling Engineering

JANUARY 1961

MHE GUIDE TO RECEIVING AND STORING

Material handling's starting point

RECEIVING GETS LESS ATTENTION than any other handling activity in a plant. It's the last area considered when there's a plant remodeling or product change.

That's the impression MHE's editors got when they traveled around the country looking for the new, interesting developments in receiving. Material handling men were eager to show them a good handling system in production or warehousing or shipping—but "come back in a few months, we haven't got around to doing anything about receiving yet."

This attitude is unfortunate. It ignores the importance of receiving as a control function, in which proper handling of goods and paperwork combine to provide manufacturing with the right material in the right place at the right time.

To write a step-by-step procedure for receiving and storing as a control function in various industries would require a book. We cannot be that detailed in this single issue of MHE. But we *can* tell you about new developments in this area; we can describe trends, point out trouble spots, show examples of good receiving and storing.

When you have finished reading this issue, we hope you'll look at your own receiving and storing and answer these questions:

Can I use a returnable container program?

Can I do a better job of specifying containers to my vendors?

How can I improve my dock layout?

Is bin or slot storage more efficient for me?

Is there a place for yard receiving and storing in my operation?

Make receiving and storing more efficient and you'll improve the handling operations that follow—and improve the product as well.

How to select a

CHART I—Procuremen

Part Number	Description	Storage Time	Quantity Stored	Material at First Operatio

A RETURNABLE CONTAINER PROGRAM can be an important asset to your receiving and storing operation. But first you have to decide whether returnables are economical and practical for you, then decide whch type to buy. This article deals with returnable, pallet-base containers. It will give you the questions that need answering before you undertake a returnable container program.

Who Should Own the Returnables?

In some cases, the vendor owns the returnables and consigns them to the user. If the vendor is shipping by common carrier, he must rely on the user to return the right number of containers and to take proper care of them. If the vendor is shipping in his own trucks, he can make the driver responsible for keeping track of the number of containers he picks up and delivers. In both of these cases there is danger that the user might misplace or mishandle the containers. The vendor is then faced with the choice between taking a loss on the container or pressing a claim and risk losing the customer's business.

On the other hand, there are many advantages to the idea of the customer owning the containers.

The customer will use the containers for receiving, storing, and possibly for the first production operation. If he owns the containers, he will do a better job of keeping track of them and handling them properly.

The customer is able to exert pressure on the vendor to make sure he receives back as many containers as he shipped.

The customer is better able to decide the type of container that best suits his receiving and storing facilities.

How Procurement Affects Container Selection

Chart 1 will help you check off the factors in procurement that influence returnable container selection.

1. Part number and description.

2. How long must material be kept in incoming stores? Production needs and vendors' ability to deliver material supply the answer here.

3. How much material must you keep in incoming stores? This ties in with scheduling requirements discussed in the previous question. The answers to these two questions determines the amount of storage space you need.

4. How much material is it economical to place next to the first operation? This question balances plant layout factors against the economy of handling in large lots.

5. What is the most economical purchase unit? This is the maximum quantity that can be handled as a unit through receiving and storing.

6. Vendor name, the point from which the material is shipped, shipping rates, return rates for empty containers.

7. Size of container that fits your receiving and storing operation. This must be balanced against other factors: container sizes available, efficient container sizes for truck and rail shipping, etc.

Container Characteristics

Chart 2 lists 16 characteristics of a returnable container. These should be evaluated from the viewpoint of your particular operation by the people involved: material handling engineer, production control manager, purchasing agent, receiving foreman, stores foreman, traffic manager. Each man should assign 16 points to the characteristic that is most important to his function, 15 points to the next most important characteristic, and so on, down to 1 point to the least important characteristic. By adding the number of points each characteristic receives, you can determine how important it is in the container you select.

Comparing Container Costs

After you have narrowed down your choice of container types, use Chart 3 to compare the cost factors of each.

1. Initial cost. The price you paid plus freight to have it shipped to you.

2. How much and how long it will work for you. This includes weight of the container, useable volume in

eturnable container

Factors in Container Selection

conomical Purchase Unit	Vendor	Shipping Point	Freight Rate	Return Freight Rate	Container Dimension

CHART 2—Container Evaluation by Job Function

	MATERIAL HANDLING ENGINEER	PRODUCTION CONTROL MANAGER	PURCHASING AGENT	STORES FOREMAN	RECEIVING FOREMAN	TRAFFIC MANAGER		
						COMMON CARRIER (TRUCK)	RAILROAD	COMPANY OWNED TRUCK
1. Low tare weight per ton of capacity								
2. Can be collapsed								
3. Durable								
4. Easy to clean								
5. Contents are visible								
6. Can be handled by readily available equipment (fork truck, conveyor, crane, etc.)								
7. Makes efficient load in common carrier								
8. Can be filled easily at suppliers' plants								
9. Can be stored outdoors								
10. Can be hauled on flatbed truck								
11. Will dispense contents directly into manufacturing operation.								
12. Will hold a batch quantity for first operation.								
13. Has long life (at least 50 trips)								
14. Must be stackable								
15. Can carry more than one type of product								
16. Low initial cost								

CHART 3—Container Cost Comparison Chart

	CONT. A	CONT. B	CONT. C
INITIAL COST			
Invoice price			
Freight In			
Other			
Total Investment			
DATA			
Weight (lb.)			
Useable volume (cu. ft.)			
Life (trips)			
Rated capacity (lb.)			
COST PER TRIP			
Write-off			
Repairs			
Tare cost (loaded)			
Tare cost (return)			
Other			
Total Cost Per Trip			
Total Cost Per Ton Per Trip			

CHART 4—Pallet-base Returnable Containers: Popular Sizes Offered by Manufacturers

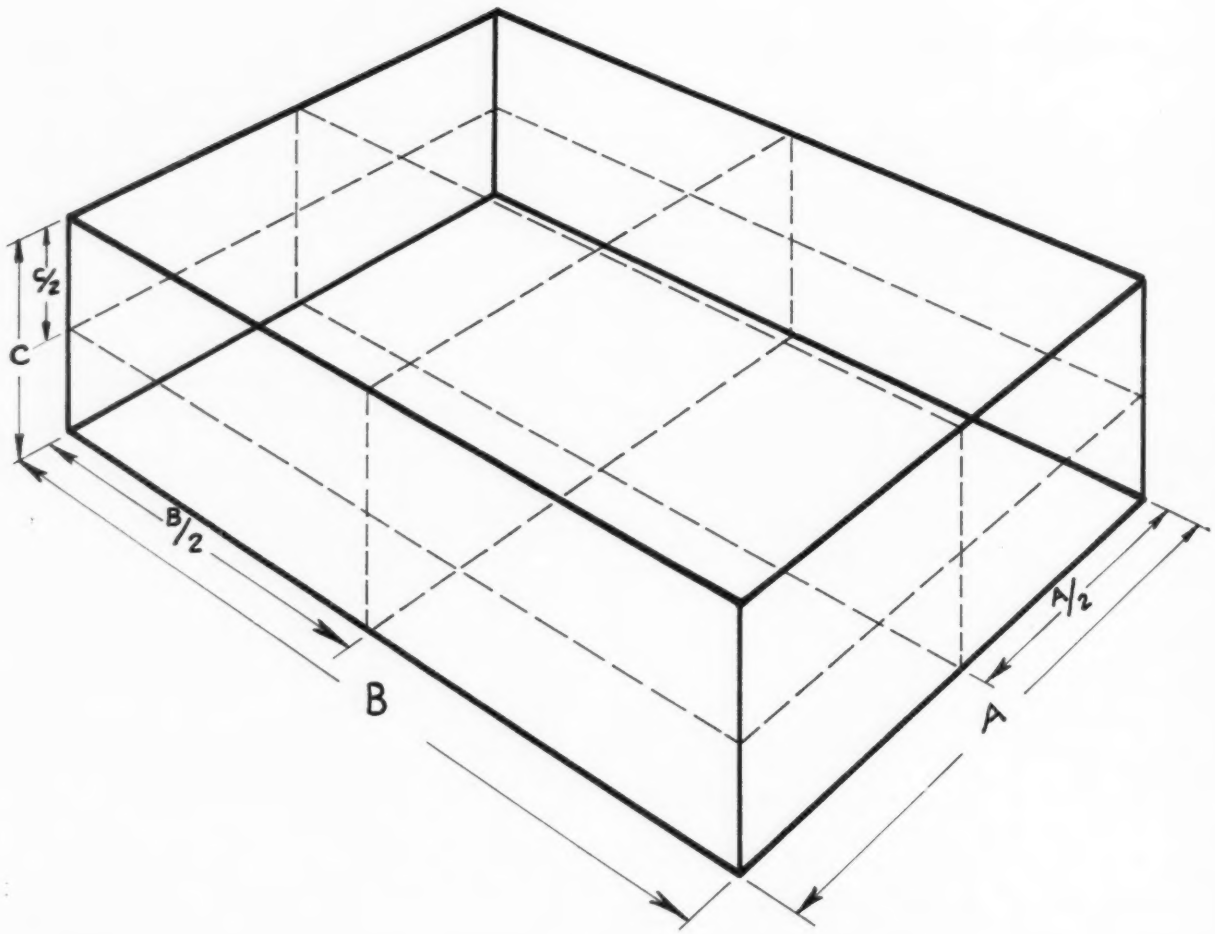
Type	Capacity in pounds	Dimensions
Steel Mesh	2000	32 x 40 x 28
	3000	
	4000	40 x 48 x 24
Pressed Steel	2000	26 x 36 x 24
		29 x 36 x 25
		33 x 36 x 24
	4000	33 x 48 x 24
		36 x 48 x 24
		36 x 44 x 25
	6000	36 x 48 x 36
		40 x 48 x 24
Wood	2000	30 x 40 x 24
		40 x 40 x 24
		40 x 48 x 30

cubic feet, rated capacity, and an estimate of how many trips it can make in its lifetime.

3 Cost per trip. Divide the original cost by the estimated number of trips to get the write-off. Depending on the container's construction, you may want to add a maintenance cost. Add freight charge loaded. Add freight charge empty (or collapsed) for return. You will then be able to figure a cost per trip for each type of container.

Chart 4 is a reference guide to the most popular sizes and capacities available in the various types of returnable, pallet-base containers. ♦

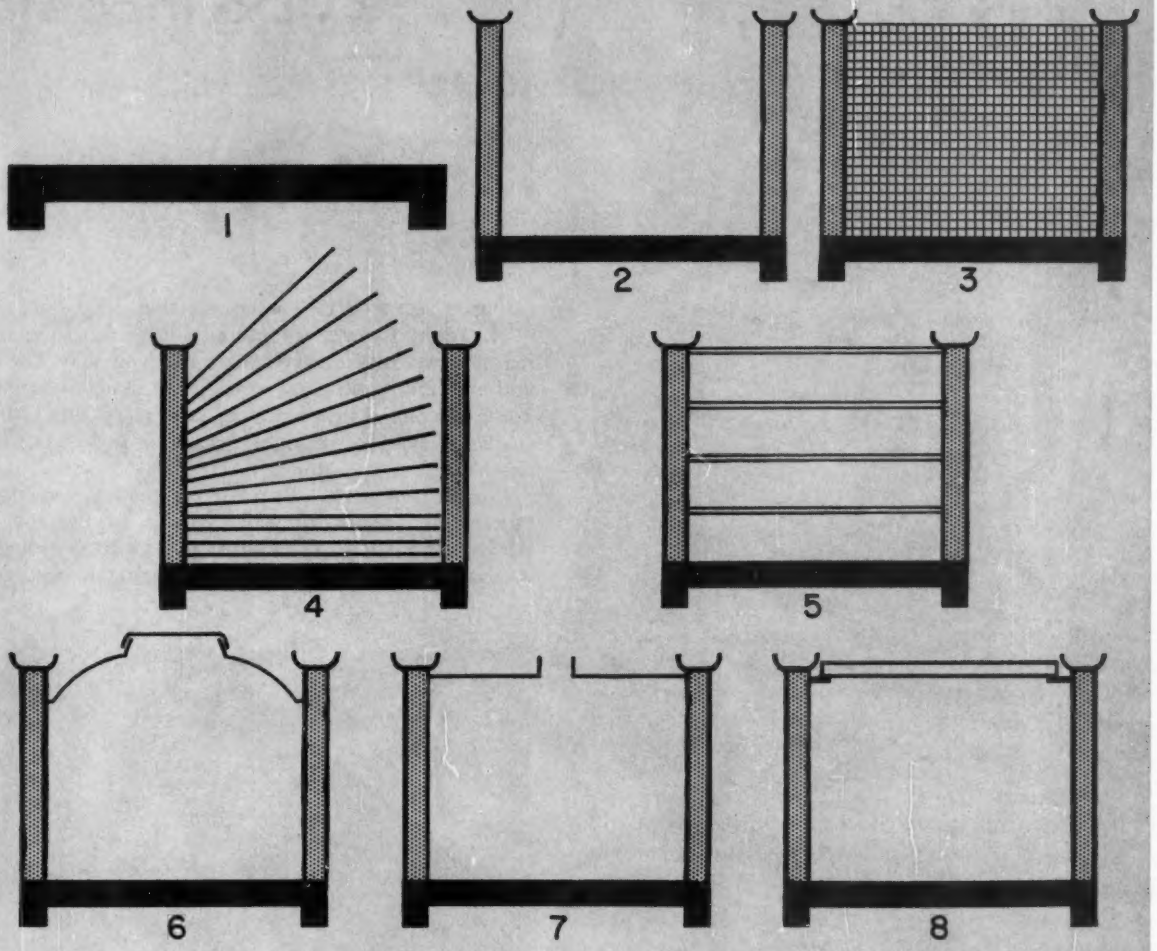
Is a basic storage unit possible?



THE DISCUSSION OF RETURNABLE CONTAINERS on the previous pages points up the idea that a basic unit for storage and shipping is one solution to receiving and storing problems. It would have all the advantages of other returnable containers—plus the added value of bringing standardization to your operation. It would be the base around which you design a system.

What is meant by a "basic unit"? Simply this. That you standardize the dimensions of a container base. Then you add corner posts, sides, tops, liners, etc., in

EIGHT BASIC CONTAINER DESIGNS



1. Base only. This is a pallet for carrying bags, cartons, cylinders, etc.

2. Base plus four corner posts. This will handle pipe, tubing.

3. Base, corner posts, and sides (solid or mesh). For handling durable parts that can be stored together, such as castings, forgings, stampings.

4. Base, corner posts, sides, and leaves. For handling parts that must be separated: motors, bumpers, gears, etc.

5. Base, corner posts, sides, and shelves. For handling small parts in tote boxes or trays.

6. Base, corner posts, sides, and liner for handling granular material.

7. Base, corner posts, sides, and liner for handling liquids.

8. Base, corner posts, sides, and liner for handling frozen items.

order to handle various commodities. This means that the container's height will vary with the bulk density of the product, but its base dimensions (or modules thereof) become a predictable and standard factor in your plant layout and handling system.

At the present time, the base dimensions of 40" x 48" and 44" x 54" are contenders for standardization from the viewpoint of satisfactory use of carrier space. Eventually one of these sets of dimensions should become your basic storage unit size.

After analyzing many bills of material and working with various container and storage systems, MHE's consulting editor, Mac McClelland, has proposed that 8 variations of the basic storage unit will handle items that fall into these categories:

1. The item is purchased and received by a manufacturer to become an integral part of his product.

2. Dimensions of the item must be smaller than those of the basic storage unit. Otherwise you must design your container to modules of the standard BSU.

3. Self-unitizing items—cement block, ingots, etc.—are not included in the BSU program.

Standardization is the key to integrated systems in material handling. Any plan that leads to this goal should be studied carefully. A basic storage unit for receiving and storing is a step in that direction. ♦

Do incoming

Or do you just take whatever they send you?

The right is yours to exercise. It's surprising how many companies don't realize, but you may ask for and get any packaging you prefer when you buy. Some companies never stop to think about this. Others realize they have this right, but figure it doesn't make much difference.

It may not matter. But often it may mean important savings in many ways. You're paying for the packaging anyway, so it's smart to investigate whether you can profit by specifying packaging to suit your

HUGHES
GROUND SYSTEMS
FULLERTON, CALIFORNIA
VENDORPAK
PURCHASE ORDER ATTACHMENT
Minimum Packaging Requirements
P-
PURPOSE
UNIT PACKAGING
MATERIAL
CLOSURE
IDENTIFICATION
INTERMEDIATE PACKING
Preferred Container Sizes
4 x 4 x 4
8 x 5 x 5
8 x 8 x 6
16 x 10 x 8
Gross Weight Limitations
Folding Carton - Max. 5 lbs.
Set-up Box - Max. 10 lbs.
Corrugated Carton - Max. 20 lbs
EXTERIOR PACKING
Fig. 1
Needle Pack, Pocket Book Fold.
Fig. 2
Rondo® Base is representative of designs available from AMERICAN RONDO CORPORATION
Fig. 3
Peltier Stan Pack is representative of designs available from STANDARD PAPER BOX CORPORATION.
Packaging Engr.
Page 1 of 1
VENDORPAK
PURCHASE ORDER ATTACHMENT
Minimum Packaging Requirements
P-
APPLICABLE PARTS; As referenced
OBJECT; Wrap parts in paper to give protection from dirt and dust or possible scratches.
PACKAGING
Preferred Container Size
Gross Weight Limitations
Folding Carton - Max. 5 lbs.
Set-up Box - Max. 10 lbs.
Corrugated Carton - Max. 20 lbs.
4 x 4 x 4
8 x 5 x 5
8 x 8 x 6
16 x 10 x 8
PACKING
REFERENCE DATA
MIL-P-17667 Neutral Kraft Paper
PPP-B-636 Boxes, Fiber (for design only)
PPP-B-566 Cartons, Folding, Paperboard (for design only)
PPP-B-676 Boxes, Set-up, Paperboard (for design only)
Consolidated Freight Classification #21, Rule #41.
Page 1 of 1
Packaging Engr.
The above requirements are supplementary to the general instructions and conditions of this purchase order. This attachment, with its terms and conditions, is an integral part of this purchase order.
RELIABLE SPRAGUE ELECTRONIC COMPONENTS
SPRAGUE

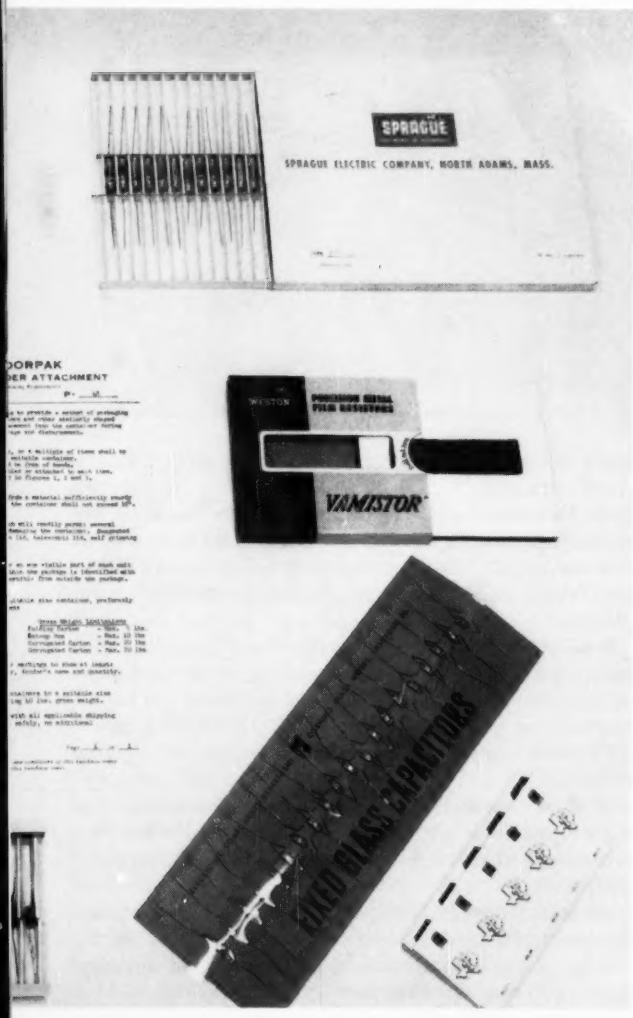
TYPICAL INCOMING PARTS clustered around the Vendorpak P-Attachment that applies to them. P-Attachments at Hughes Aircraft give minimum packaging requirements. Note in closeups that they cover all packaging details. The idea works equally well for any materials, not just small parts.

materials come in the package best for you?

needs when you buy. (See "Standard Cartons Simplify Handling," MHE, Sept. '60.)

Advantages

• **Material handling compatibility**—Can you handle and store incoming materials in the containers they come in? Do they fit your handling equipment? Your racks and shelving? Are they enough like the containers from your other suppliers so that you can standardize on one handling system for all of them? If not, you almost definitely need a packaging change.



• **Protection**—Most suppliers package adequately to protect against average shock, moisture, etc. Is this good enough for you? For example, if you take elaborate steps in your plant to protect metal parts from rust during storage, perhaps the parts supplier could save you the trouble by packaging differently.

• **More storage in less space**—When you call the shot, you can ask for package sizes that fit your storage. This way, you can use all the space instead of just most of it. You may be surprised how much you can reduce storage space needs by filling all the space on your racks, shelves, or floors.

• **Re-use of containers**—Many companies re-use containers from incoming materials as in-plant tote boxes. Some even use them for reshipping. To use them best, make sure they're the sizes you need and of the materials you need.

• **Ease of inventory**—Standardizing on number of units per container takes a lot of the work out of physical inventory. So does standardizing on labels and marking. The fewer different kinds of containers coming into your plant, the better.

Hughes' Vendorpak

Hughes Aircraft Co. specifies the packaging for materials coming into its El Segundo and Fullerton, Calif. plants. They use a system called Vendorpak to instruct all suppliers what packaging to use.

Vendorpak consists mainly of a set of printed minimum standards to tell suppliers how Hughes wants its incoming materials packaged. There is a directive covering every likely type of material. The purchasing department attaches the appropriate directive to every purchase order it issues. Hence the directives are called P-Attachments. Hughes needs only 49 P-Attachments to specify packaging requirements for thousands of items from more than 6,000 vendors.

Who pays for it?

You pay for the package your goods come in. So you might as well get what you want. At Hughes, the vendor includes a separate allowance for his Vendorpak costs in his competitive bid.

But sometimes, if a vendor lacks the facilities for low-cost packaging, his Vendorpak price may be too high. Hughes does not penalize him for this. If his price without the Vendorpak costs is still the best after Hughes adds its repackaging cost, he still gets the order; Hughes either supplies him with Vendorpak containers or waives the specifications and repackages the order when it arrives. ♦

Good dock layout—a must in handling

By G. R. OGDEN
Drake, Startzman, Sheahan, and Barclay

ALL GOOD DOCKS have fundamentals in common. Apply these fundamentals to a study of your needs and anticipated growth and you'll have an important step toward efficient receiving. But remember: dock differences are legion, depending on plant size, layout, material received, handling methods, and carriers.

To give this discussion some limits, I'll restrict it to truck and rail docks at new manufacturing plants. I arbitrarily exclude yard receiving, bulk receiving, and the special considerations that go with very large equipment, structural components, barge and ship receiving.

Before you can design the best dock for you, make certain of specific requirements:

1—Determine the workload—Plot the arrival pattern of carriers. Log the arrival, waiting, spotting, unloading times, and volumes unloaded from each truck and railcar. Plot this against time (by the hour) to show activity levels. You'll probably find you can't average inbound volume because trucks and railcars don't arrive uniformly during the day. Instead, you must provide for the peaks.

2—Use your work force effectively—Sometimes you can shift your men to other work during low activity. You may have to combine other work with receiving. Frequent combinations: receiving and shipping; truck and rail receiving; receiving, tallying, and preparation for storage.

3—Determine the temporary holding space—Provide enough space for sorting during unloading. You also may need space to check, inspect, repackage, or accumulate for distribution. Establish the number and types of accumulations, the volumes, and physical characteristics.

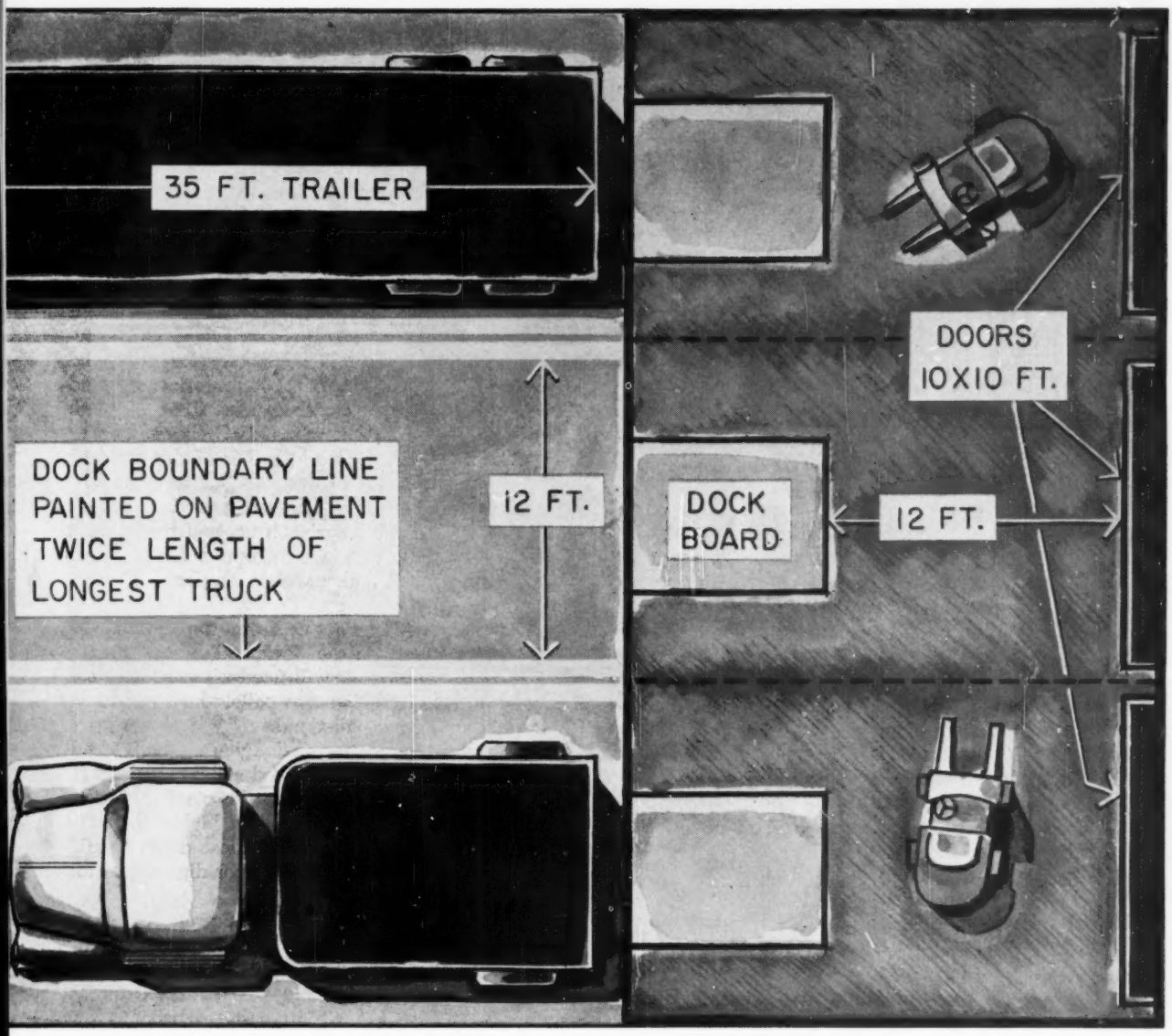
4—Determine carrier characteristics—List the body types, bed heights, lengths, widths, heights, and door dimensions of trucks and railcars. Discuss practices and future plans of the carriers which will serve your plant.

5—Determine handling methods—Figure this out before you design the dock. Handling methods depend on material and volume, whether it's loose, packaged, unitized, or a combination of these. Dock design will vary with conveyors, cranes, lift trucks, or manual systems.

Always consider these five requirements before you work up a dock layout. But you may have other considerations that apply only to your specific installation, such as:

Consolidation of LTL or LCL receipts to minimize carriers to be served.

Use of drop trailers and scheduling of inbound carriers to reduce peaks and level workload.



Unitized receipts to expedite unloading and reduce docktime.

Simplified paperwork for reduction of unloading delays and temporary storage in the receiving area.

Auxiliary receiving areas for high volume, such as raw materials unloaded next to the first operation. Or, small volume and miscellaneous at the main receiving area.

Be sure to list these and similar considerations too.

Getting into the Design

Length of the dock—From your workload analysis, figure out the number of truck and railcar spots. Select the peak hour, when the greatest number of vehicles or most freight is unloaded. Determine the average unloading time for each vehicle during this hour. Add in the average time for vehicle spotting and pullaway. Now, multiply the average dock time per vehicle by the number served during the peak hour. Result: the total number of truck spots needed.

Example: if you need ¾ hours of dock time for each vehicle and 20 trucks must be unloaded in an hour, you must provide ¾ x 20 or 15 spots. Remember to add provisions for future expansion.

Figure railcar spots similarly. But, unless you have storage tracks and car shifting equipment, you'll be bound by the shifts supplied by the railroad. If you can remove an empty car immediately and replace it with a full one, you're in good shape.

Width of dock—This depends on working and storage space. If you unload manually or by fork lift, plan an aisle parallel to the dock edge. Standard width is 12 ft., starting from the inside edge of dockboards, conveyors, or temporary storage areas along the dock edge.

Off-street parking—Waiting vehicles should park off the street if possible, may have to in some places. Determine the number of parking spots from the workload analysis. It will show how many vehicles must wait during peaks.

Apron space—This is for maneuvering trucks and trailers. Measure the apron from the outermost part

of any vehicle or other obstruction. Freuhauf Trailer Co. gives these dimensions for maneuvering (in feet):

Vehicle length	Position width	Apron space
35	10	46
	12	43
	14	39
40	10	48
	12	44
	14	42
45	10	57
	12	49
	14	48

Dock location—The receiving dock must suit the plant's internal flow pattern. But there are external factors. Receiving docks must be accessible from adjacent streets, must have adequate aprons, and should have parking space for waiting vehicles. These are important particularly when receiving and shipping docks are on opposite sides of the building because it means duplication of space requirements.

Work out siding requirements for railcars with the railroad. It may be desirable to combine truck and rail unloading. In fact, space and labor may dictate this.

Consider weather exposure. Open platforms usually are undesirable. Build your building so that docks on opposite sides are parallel to the prevailing winds during bad weather. If the docks are on one side, build them in the lee of the building.

Adding to Efficiency

Here are some more considerations for designing your dock.

Backup spot—A 12-ft.-wide platform edge for each carrier now is standard. Anything narrower dictates more apron and heightens possibility of damage from scraping. And remember to carry the 12-ft. widths in enclosed truckwells through the doorways to the well. This is 12 ft. of open space, free of space lost from columns, doors, or steel guards.

Paint the boundaries of each truck spot on the apron pavement with white or yellow lines. This helps the truck maneuver. The lines should extend from the dock edge to twice the length of the longest truck expected. You might also extend the lines upward on the building face, so they may be seen by a driver from his side mirror.

For railcars, allow 52 ft. for each spot. Distance from platform edge to track centerlines should be 5 ft. 8 inches. But you ought to consult the local railroad for variations.

Columns—An ideal truck dock has no columns except along the edge. If there are internal columns, they should be on centers which allow at least 12 ft. between them. Columns along the edge of rail platforms should be avoided. Otherwise you might have to uncouple and individually spot cars.

Dock height—This depends on the type of vehicle and unloading system. The platform should approximate truck bed or car floor heights when hand trucks or industrial trucks are used for unloading. Recommended platform heights are 48 inches for pickup trucks, 52 inches for over-the-road units. Rail docks should be 44 inches from platform to top of rail. Dockboards and bridge plates will compensate for variations in vehicle heights. But the dock aids should be long enough to keep grades as low as possible. Remember: each 1 percent of upgrade takes 20 lb. additional tractive power for each ton. A 10 percent grade needs six times more power than that used on a good level floor.

Floors and paving—The type of handling system will dictate the load bearing capacity of the receiving platform. Recommended capacity for industrial trucks is 200 lb. per sq. ft. for 2,000-lb. fork trucks and 250 lb. per sq. ft. for 4,000-lb. trucks. Concrete with a fine float finish is recommended. Carborundum or metal filings for surfacing add to life of the concrete and improve traction.

Good paving will save on repairs and claims in parking areas and truck aprons. Ruts and holes strain equipment and cause freight to topple. Design your paving for local soil and wheel loads. Local carriers will help you.

Ceiling height—Figure this from the amount of freight to be stored on the dock and from the handling system. Fork trucks will need a minimum clear height of 10½ ft. (stacking two pallets high). Add 4½ ft. for each additional palletload.

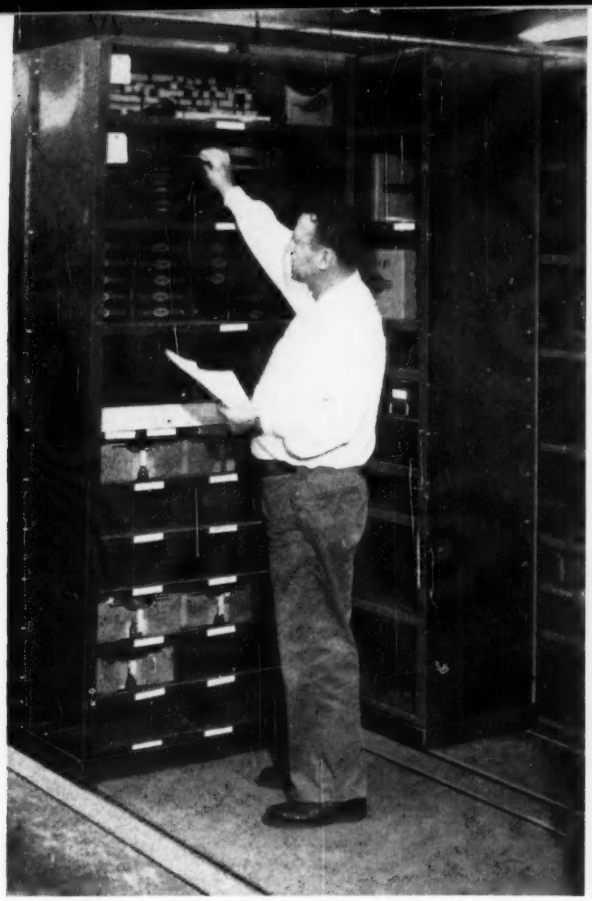
Doors—Along the platform edge you normally need 8 x 8 ft. overhead doors. You need at least 10 x 10 ft. doors leading from the dock into the plant. Doors to enclosed truckwells should be 1½ ft. higher than the highest units that will use them. These doors should be 12 ft. wide. Get railcar access door dimensions for enclosed sidings from the railroad.

Lighting—Overhead lighting should provide at least 15 foot-candles throughout the working area. Inside trucks and railcars the lighting should be stronger because shipping markings must be read accurately. Try a spotlight on a flexible conduit. The spot can be swung out of the way.

Weather protection—You'll minimize damage, slice accidents, cut delays, and improve morale, if your docks are warm enough and protect from wind, rain, and snow. The greater the physical activity, however, the lower the temperature needed. But don't let the docks go below freezing.

Plants use many different methods of heating: forced hot air directed toward exterior doors, radiant heating, and infrared units, among them. A canopy or roof overhang is recommended for partial protection. The canopy should be 8 to 12 ft. wide and should slope toward the building to prevent runoff on truck and railcar roofs. Allow at least 1½ ft. clearance between bottom of the canopy and top of the highest vehicle.

Drainage—Grade yard areas, backup, maneuvering, and parking areas. This enables surface water to escape; aids traction in mud or ice. Grade backup areas downward, away from the unloading platform. Avoid sharp grades. Provide drains in enclosed truckwells to take away dripping water from vehicles.



Bin or slot storage— one is better for you

WOULD IT ADD YEARS to your life to send parts directly to production? Probably, but it's pretty tough to do. If you're like most, you probably have to store parts until production needs them.

If your storage is good, it should do these things for you:

Require minimum handling.
Enable you to find parts quickly.
Send them to production in a hurry.
Protect parts against damage
Provide first-in-first-out.
Make auditing a breeze, not a chore.

You can classify most parts storage systems according to how you control the parts. With the bin system you label the rack space. With the slot system you label the trays of parts.

There's another general consideration: popularity of the parts, how often they're called for.

The Fixed Location or Bin System

There's a particular rack space for each part. You label each opening according to the part it takes. Keep a card file of part numbers to tell location in the racks and quantity on hand.

Bin storage is neat. You can pick from one location without chasing all over. Popularity arrangement is easy too. There's no difficulty placing parts frequently called for near the dispensing station. Bin storage is the most widely used system, particularly in smaller places.

Chief drawback: it's less efficient. Seldom do you use full rack space. That's because you must estimate how much space to leave for each part. If you get less inventory than forecast, you still must leave the space empty because it's spoken for and you can't mix small parts. If you get more inventory than forecast, you might have to stack boxes of parts in the aisles. Another drawback: as new parts arrive, they go on top of the old parts, defeating first-in-first-out.

For stock auditing, you have to take out all parts, count, and return them. The amount of handling goes up, wastes time.

Rotating Location or Slot System

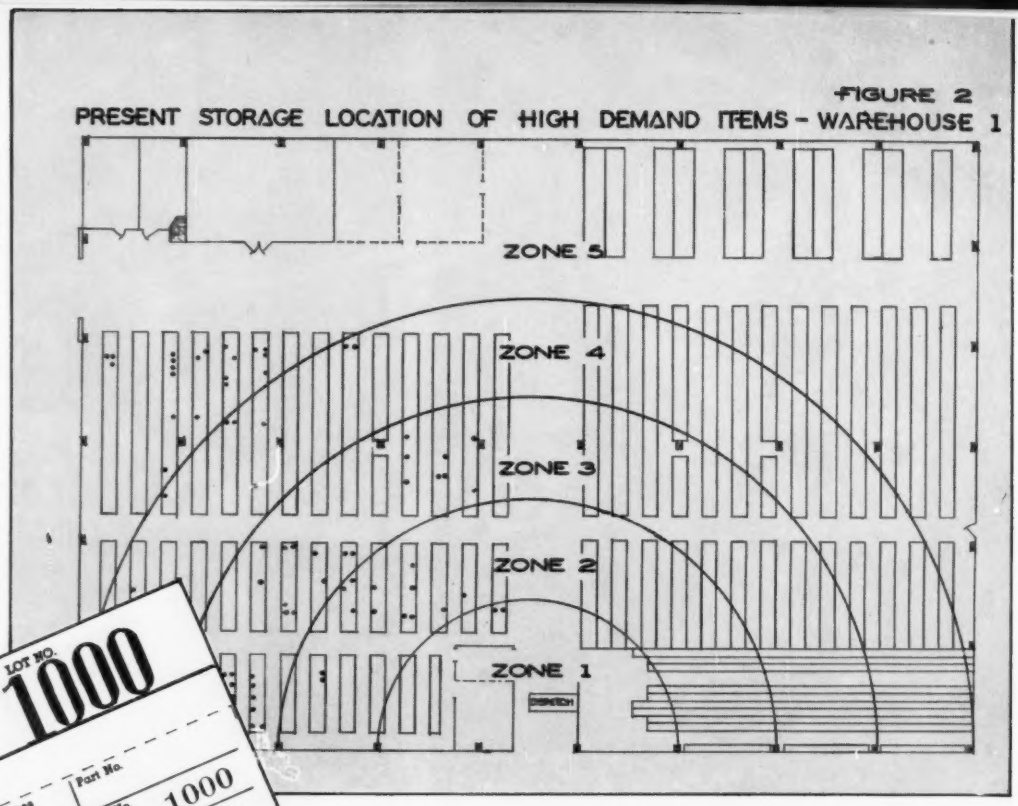
You empty incoming parts into tote boxes, then

BIN OR SLOT

AN IMPORTANT consideration for parts storage is convenience to the dispensing station. One way to work up a logical system is with concentric zones.

THE TAG that goes into the control file is the key to the slot system. There's duplicate card underneath, separated by carbon paper. The duplicate goes on the box of parts.

FIGURE 2
PRESENT STORAGE LOCATION OF HIGH DEMAND ITEMS - WAREHOUSE 1



weighcount. If parts weigh the same—and they should—you know how many are in each tote box.

Tote boxes go to any empty space in any rack. Key to this system is a 2-tag label. Both tags carry part number, location in racks, quantity, and consignment number. One tag goes on the tote box, the other in a control file. The file tag drops in behind other tags for that part and the early tags are issued first. This insures first-in-first-out. The tag tells the stock picker exactly where to find the part. He may have to pull tote boxes from several openings to get enough to fill his order. When he takes a box from an opening, he pins on a special tag to save the space until he returns the box. If he empties the box, he leaves the space untagged, ready for another load.

To fill his order, the stock picker need only count boxes and individual parts from the final box. He knows the number of parts in full boxes because each was weighcounted. When he returns a partial to the rack, he makes an X on both tags to warn the next picker that the lot is broken.

This makes stock auditing fast and efficient. The auditor need only be sure there's a box in the rack for every tag in the control file. Then he counts the parts in the partials. But this is the only parts handling he does and there's only one broken box per part in each opening.

Slot System Advantages

There is almost no waste space. There's rack room for any part so long as one space remains empty. It does away with large sections of partially filled tote boxes. You don't have to estimate closely the individual parts inventories. And you're assurred of first-in-first-out.

Some companies report they get 25 to 30 percent more items into the same space with the slot system.

Popularity arrangement is possible but not so easy as with bin storage. You can place popular items in empty spaces near the dispensing station. But you may not get them as near as you would like.

One disadvantage to the slot system: workers must be trained to use it properly.

Parts Popularity

When one part is sought more than another it's more popular. Convenient location is vital. Place high turnover parts at a convenient height, usually near the center of the rack. Medium turnover parts go at the bottom, and low turnover parts, at the top. In the bin system this is easy. In the slot system it's possible if you have the right empty spaces.

Another consideration is distance from the dispensing station. Find out from your records how often parts are asked for. You may find (as did Company X) that 10 percent of the parts are called for 80 percent of the time. So you place these parts, when possible, near the dispensing station. Try dividing the storage section into concentric zones with the smallest zone nearest the dispensing station. Store parts according to a carefully worked out popularity chart. Company X found it saved 70 percent in time alone with a 5-zone popularity system. ♦

Todays yard storage brings new benefits

VACUUM LIFTING attachment solves the problem of handling a 40-foot plate in the yard. Plate sags, but grippers hold tight.

Whiting Corp.

WHAT'S NEW IN YARD STORAGE TODAY? Simply this. Industry is waking up to the fact that the shortest distance between two points is not always the cheapest.

Yard storage is on the increase. It saves indoor space for production. Outdoor space is cheap. Material handling equipment is powerful and speedy. It moves goods easily from storage yards to manufacturing and back.

Companies realize they can afford to haul material a distance. Some factories have their storage yards four blocks away. The building next door is no longer considered the only expansion. Ten years ago, a manufacturer wouldn't have considered a storage yard that wasn't next to his factory. But compare 25¢ per sq. ft. for outdoor storage with $8 inside, and you can see why they can afford to travel the extra distance.

Today, there are larger stocks of raw materials and finished products. The yards cost less to build and keep up than even the cheapest new building. They no longer store only surplus parts. Outdoor storage has won its own important place.

Here are the reasons why they're storing outdoors:

Plastic spray-on preservatives.
Plastic sheet coverings.
Barrier wraps.
Vacuum plate handling.
Attachments for palletless handling.
Containerization.
High capacity, high speed cranes, lift trucks, straddle carriers, front end loaders, and side loaders.

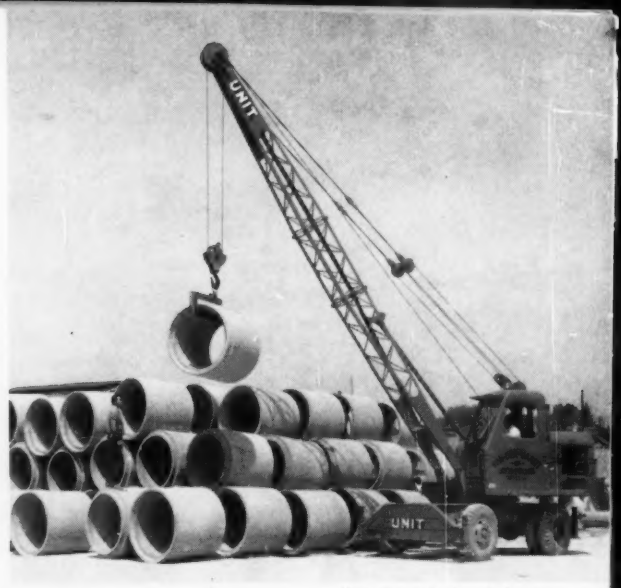
The Vacuum Plate

The vacuum plate is fairly new in outdoor yard handling. Main use is for plate and sheet, but it can handle concrete, formica, etc. Ideal for unloading and handling heavy materials.

Mobile Cranes

The mobile crane that will do the best job in a storage yard depends on the size and shape of the

Harnischfeger Corp.



Unit Crane & Shovel Corp.

MOBILE CRANES play an important role in yard handling. Self-propelled crane (right) uses C-hook to stack pipe. Truck crane unloads gondola car.

yard, and the kind and size of materials being handled.

Mobile cranes today travel, pick-up, and return with bigger loads. Many factories are designed for them with high, wide doors.

The mobile crane must be able to go down a highway and stay within weight limitations. Speed is important too. Some models go 22 mph, others to 35 mph.

Why mobile cranes? They pick up bulky pieces. Mobile cranes, 8- to 15-ton capacity, are good for general yard work. They give you precision control.

Another manufacturer says that small scrap yards, where faster cycles are required, are even using overhead cranes. In outdoor warehousing, the overheads save time. You get away from labor. You don't need a big aisle. It makes your yard wide open.

Since 1946, a crane manufacturer says the trend is to underhung cranes, that to transfer from one area to another, as in the storage yard, the underhung crane is best. Take a yard that has a central receiving area. The underhung crane has least dead weight to live load ratio. Fifteen-ton capacities are common. You can get up to 20 tons. The underhung crane is used mostly where you do not have heavy work cycles. In outdoor work, the controls must be weatherproofed, and so does the electrical equipment. You get by with little aisle space.

Attachments

Yard handling by lift trucks is for the most part palletless handling, although some handling is done on racks. Lumber, for example, is set on dunnage and lifted. There are clamps for drums, brick arms, concrete block arms, rams for pipe. (MHE recently discussed attachments and their new applications in "Multiply Your Handling Power with Lift Truck Attachments," September, 1960.)

Containerization

Yard storage will become more popular with the spread of containerization. A storage yard made up of row upon row of piggyback trailers or van containers will be common in a few years under railroad Tariff Plans III and IV. A European automobile manufacturer is planning to containerize his complete assembly operation. Van containers will be loaded at the suppliers' plants, be stored in the manufacturer's yard until needed. The automaker is even considering bringing the containers into the plant, spot them right at assembly. Containerization people have this word of caution about storing machined parts, however. They say you must be sure to avoid rust. A container storage system in the yard needs an improved (paved) surface. The great weights of the containers and mobile equipment need it. The stacking straddle carrier has made container handling in the yard doubly effective. It stacks containers two high, needs no more than three to four feet aisle width between rows for handling.

Clark Equipment Co.

CONTAINERIZATION adds new dimension to yard storage. A Matson yard previews storage of the future, with straddle trucks stacking van containers in neat rows.

New Equipment

Long distances are common in the yard. Two pieces of mobile equipment that make long trips easily are the straddle carrier and the side loader. Both are 1-man jobs. The straddle carrier carries more per pound in relation to its own weight, but the side loader can stack. It also meets the regulations for highway travel better.

The newest thing in gasoline-power fork trucks for yard work are 40,000 to 45,000-lb. capacity jobs to handle big containers. For outdoor use, they usually come with pneumatic tires. They're built to withstand weather, and you can get them with cabs.

Plastic Spray-ons

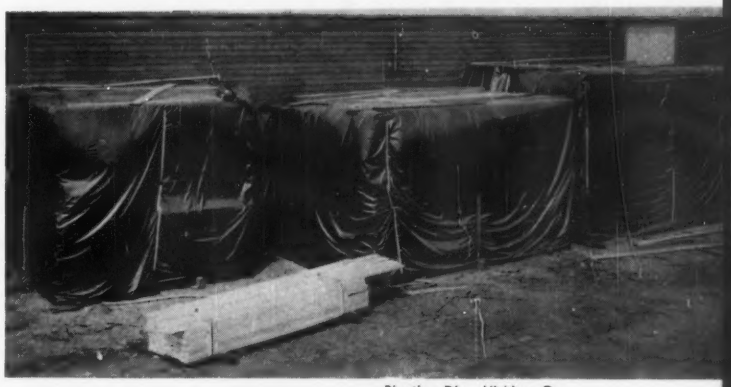
They form a protective film. Fine on iron, steel, aluminum, magnesium, and plated finishes. Harmless to painted surfaces. Easily removed with steam or solvents. Part being sprayed can be dried to keep moisture from being trapped under the film. Goods can be recoated at intervals. Not to be overlooked are the oil slushing compounds for steel.

Plastic Covers

Most anything can be stored safely outdoors with them, even in bad weather. They're cheap, about 2½ cents a square foot. Come in clear and black. Black is better for outdoors, keeps out sunlight. The sheets are waterproof, reasonably durable, light, and easily handled. A 1,000-sq.-ft. polyethylene sheet of 4 mils thickness weighs less than 20 lb. They stay flexible to −70° F. You can make a small shelter with it. Clear film lets in sunlight, retains heat.

Barrier Wraps

Kraft paper is the basic material for the many barrier wraps now available. While more often used for packaging, they are used in yard storage also. The paper may be covered or laminated with asphalt, resin, plastic film, or special chemicals for custom-jobs. You can buy it in unlimited sizes, get it resistant to water, grease, chemicals, oil, or vapor.



Plastics Div., Visking Co.

Plastics Div., Visking Co.

YARD STORAGE protection in two forms. Black film covers (above) are sun-resistant for long outdoor exposure. Polyethylene-covered shed protects bags.

Dempster Brothers

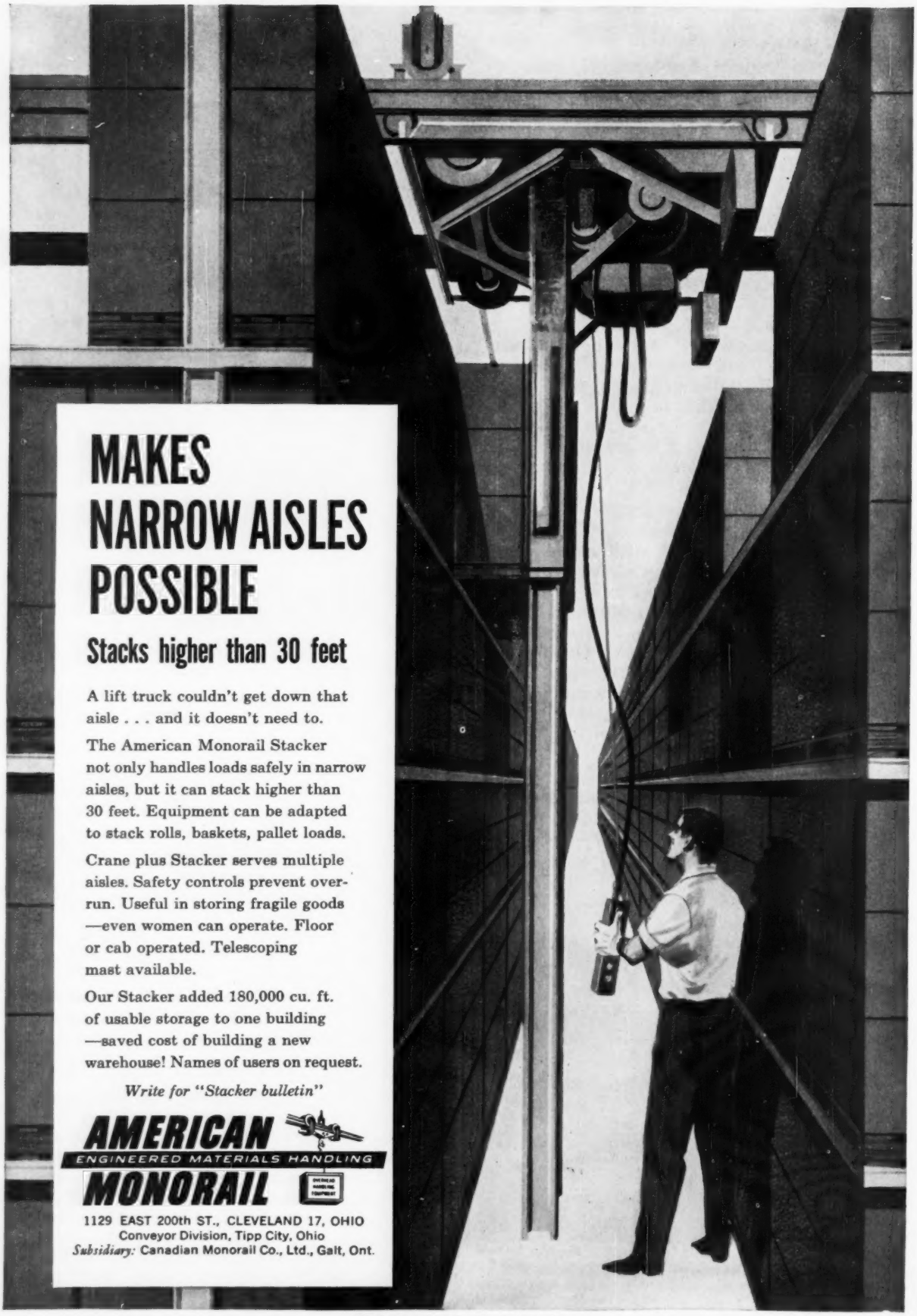
CONTAINER moves from yard storage to over-the-road truck with no auxiliary equipment. Truck driver maneuvers tilting frame to pick up the container.

Outdoor Storage Problems

Yard handling is not all velvet. In the North, you contend with weather. You have to decide whether you're going to provide a roofed area for certain products, or whether you're going to let them be covered with snow. You have to decide on how much paved area you will require.

What does the yard foreman do when he finds two feet of snow on his storage area? He goes to work with snow removing equipment. Some factories have equipment that rivals that of cities. "When it snows we move" is the outdoor storage-yard foreman's rule.

How do you get the man who has been driving a fork truck indoors to go out and work in subzero weather? It takes education, say some yard foremen. You provide cabs with heaters, radios for entertainment. You let the men dress in hunting clothes if they want. You provide parkas, boots, anything to make them comfortable. It sometimes takes as long as two years to get employees used to the work. But several companies report that they have a demand for outdoor work when there's a choice. You just have to get them used to the idea of working outdoors. ♦



MAKES NARROW AISLES POSSIBLE

Stacks higher than 30 feet

A lift truck couldn't get down that aisle . . . and it doesn't need to.

The American Monorail Stacker not only handles loads safely in narrow aisles, but it can stack higher than 30 feet. Equipment can be adapted to stack rolls, baskets, pallet loads.

Crane plus Stacker serves multiple aisles. Safety controls prevent over-run. Useful in storing fragile goods —even women can operate. Floor or cab operated. Telescoping mast available.

Our Stacker added 180,000 cu. ft. of usable storage to one building —saved cost of building a new warehouse! Names of users on request.

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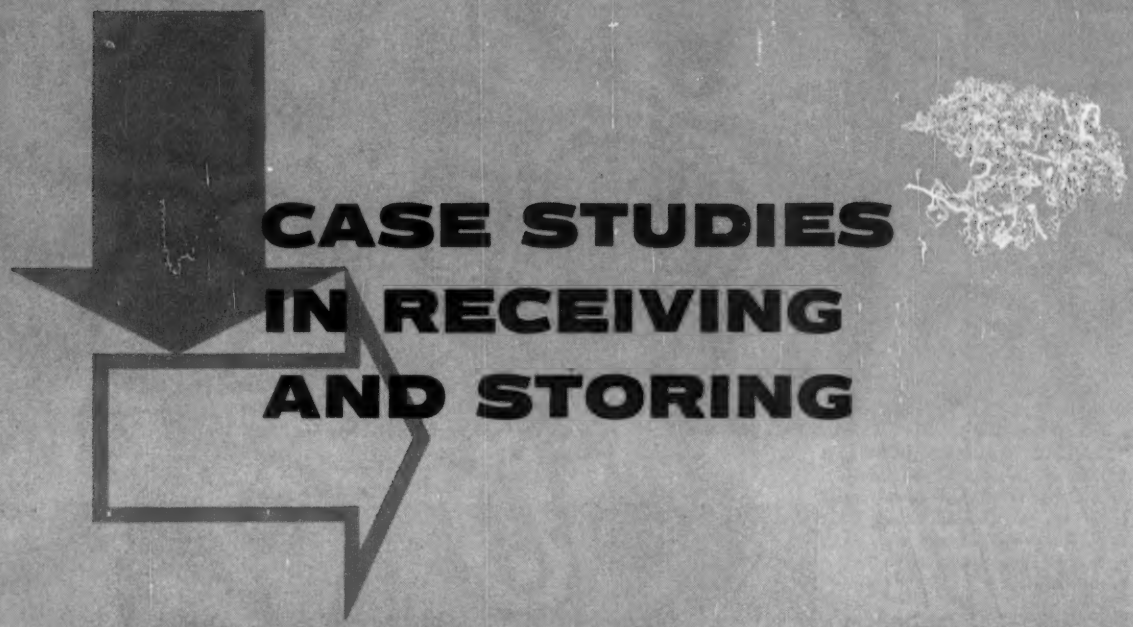


CASE STUDIES IN RECEIVING AND STORING

Mobile equipment speeds yard receiving

DURING A TYPICAL DAY U.S. Metals Refining Co. unloads 45 truck loads and 12 box cars of scrap copper at their 185 acre plant in Carteret, N.J. Last year they produced 233,422 tons of refined copper from this scrap. Scrap comes in to the plant by rail, truck, barge, and ship.

They handle most of their scrap with 22 pieces of radio equipped mobile equipment—fork trucks, tractor shovels, a straddle carrier, and other special vehicles. Plant railroad trackage has been cut by 40%.

The rate of production and the final cost of refined copper depends heavily on the efficiency of receiving and stockpiling. Mobile equipment, experience shows, handles at much lower costs per ton than former methods. U.S. Metals wants to keep adding new mobile equipment and eventually eliminate all rail movement except sidings for receiving and shipping.

Unloading Method

Unloading crews spot the boxcars of scrap in a large 12-car unloading building. Nine tractor shovels, some with 16-cu. ft. buckets and some with hydraulic claws, unload the scrap into boxes. An overhead crane then picks up these boxes, weighs them, and dumps them into larger dump boxes (17 cu. yd. capacity), which are handled by a straddle carrier. The unloading crews cannot unload directly from the rail cars to these large dump boxes now because part of the unloading building is used for temporary

STRADDLE CARRIER DUMPS BOXES of scrap metal on stockpile. Capacity of these containers is 17 cu. yd. Carrier moves to stockpile, drops box and picks it up by engaging hooks on end of box with lift bar on the carrier.

TRACTOR SHOVEL SCOOPS UP SCRAP near furnace area. This vehicle operates continuously over jagged metal and has 28-ply tires.

TRACTOR SHOVEL UNLOADS boxcar of nonferrous copper bearing scrap. The unit enters the car, scoops up loads of scrap and then dumps it into containers which are handled by overhead crane.

scrap storage. Once the company gets this temporary storage out of the building, the crews will spot the dump boxes near the boxcars.

Straddle Carrier—A Mighty Piece of Equipment

A 50,000-lb. capacity straddle carrier drives over the filled dump box, picks it up, and takes it to the stockpile. To unload, the straddle carrier lowers the box to the ground and moves forward. A lifting bar on the rear of the carrier engages hooks on the end of the box. The bar is raised, tilting the box about 60 degrees. This dumps some of the scrap. The remainder dumps when the carrier backs up slowly, raising the box straight up. When the box is empty, the driver lowers the lift bar and at the same time drives the carrier away. Once the box is on the ground, the carrier backs over it, picks it up, and returns it to the loading point.

Radio Dispatched Equipment

Two-way radio controls the entire system from a central dispatching office. The dispatcher knows exactly where each piece of equipment is at all times. And if more help is needed in another area, the dispatcher can get the equipment there in a minimum of time.

Delivery to Furnaces

Furnaces, similar to Bessemer converters, are fed

scrap by the straddle carrier from a special round-bottomed container with a tapered pouring spout. This container has trunnions on each side so it can be hoisted and dumped by an overhead crane, which charges the converters.

A blast furnace in the same area is charged by a skip hoist loaded by two tractor shovels, each having a 2¾ cu. yd. capacity bucket. These machines climb scrap piles and take running bites of the heavy, hard-to-handle scrap. The tires on these tractor shovels are heavy duty 28-ply.

New Method of Drum Handling

There's speedy fork truck handling of scrap received in drums. These trucks are equipped with rotating drum clamps which upend barrels into 10-cu. ft. self-dumping hoppers. Two fork trucks carry the full hoppers to the stockpile. The hoppers are dumped by the truck operator by a control in the cab. A hydraulic cylinder raises a lock handle on the rear of the hopper. This makes the hopper rock forward and dump its contents. The hopper rights itself and locks automatically. ♦

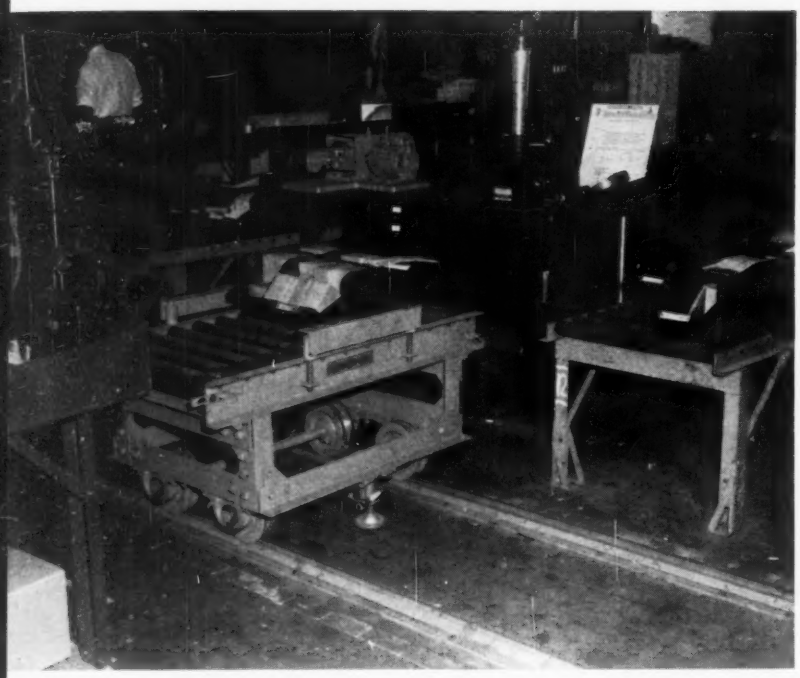
Keep storage to a minimum

ALTHOUGH EUCLID DIVISION of General Motors Corp. makes most of its own components, it has a steady flow of what the firm calls segregated production stores. The goal at Euclid's Hudson, Ohio, plant is to feed these stores into production directly from receiving.

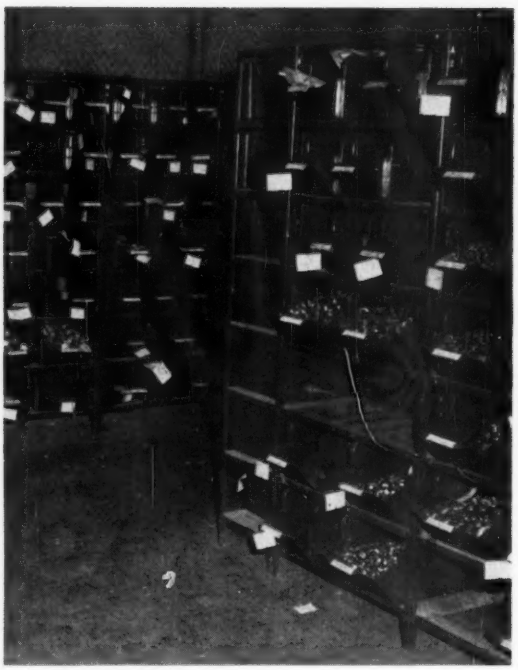
They already do it with 75 percent of various incoming items. They put up racks for small parts right at the machines. The other 25 percent goes to production stores, later will replenish stores at production. They distinguish what goes where like this:

A part used in only one operation goes there

A SEPARATE receiving section has 10 docks, worked by bumpers. Trailer rear strikes bumper, raising one end of dockboard which then floats down to rest on trailer bed. Overhead cranes, through transfer points, can carry items through three bays into the plant.



TRANSFER CAR moves pans of small parts from weighcounting lines to one of four inspection lines. From there, pans go either to production or to production stores in a caged area.



PRODUCTION STORES (below) features bin location system. White tags on pans were placed there during annual inventory, have nothing to do with the storage system.

directly. A part used in several different operations goes to production stores.

A Big Receiving Section

Euclid Division makes two sizes of crawler tractors. These are large track bearing vehicles used for off highway heavy construction.

There are several receiving areas, including some indoor rail sidings. These areas generally are close to the production lines they feed.

The main receiving area, however, includes 10 truck docks and room for expansion. The docks all have fully automatic mechanical dockboards, worked by bumpers.

Above the entire receiving area are underhung bridge cranes for special unloading. One 3-ton crane sits directly over the truck docks. This crane can carry items through two other bays, using fixed transfer points and crane-to-crane interlocks. For example, one crane can carry a part 160 ft. into the plant from the truck dock. These cranes also serve a nearby indoor rail siding.

The bulk of items arriving at the truck docks are segregated either as large parts or small parts. These large and small parts either come unitized or they are palletized right at the dock. Workers use 4,000-lb. electric fork lift trucks to unload the trucks. High volume castings or forgings, examples of large parts, come in tubs supplied the vendor by Euclid. The lift trucks unload in 20 minutes an amount that ordinarily would take 5 or 6 manhours.

Tubs of castings go to a 6,000-lb. counting scale right at the dock. Then the tubs are transferred by lift truck to one of a row of gravity roller conveyors 70 ft. long. Used as live storage lines, they slope 3/16″ to the foot, leading to the plant interior.

Castings and forgings are inspected on these lines. After inspection, castings and forgings are loaded—still in the tubs—on a trailer train. It stops at the inplant end of the gravity lines, then takes the tubs to any of 17 trailer drop stations throughout the plant. Production then takes over.

Now for the Small Stuff

Fittings, hardware, and other small parts come in by truck in a variety of packages and kegs. Workers remove the parts, drop them in standard Euclid pans. There are two standard sizes, designed so one man can lift either when full. The small pan is 8″ high, 8″ wide, and 14″ long. The large pan has the same height and length, is 12″ wide. Both have 4-inch sloped hopper fronts.

Each pan of parts goes on a gravity roller conveyor where it's identified and weighcounted. The pans can move from two weighing lines to any of four gravity roller inspecting lines. There are more inspecting lines because it takes longer to inspect than to fill and count.

Small parts bound directly for production go on the trailer trains that carry the large tubs. Other pans of small parts go by fork truck to production stores where workers transfer them to shelves with a portable elevator that has a roller bed platform.

The Bin System

The Hudson plant favors the bin location system

for production stores because it's neater, cuts down on searching, and, for their purpose, works better than other systems.

The bin system is a parts numbering system. When a load arrives at production stores, the worker finds the number for that part in a card file. This tells him its bin location. He pencils the part number on a tag which fits into the pan lip. The pan of parts then goes into its place, to remain until production calls. If production can't use the entire pan of parts, the remainder returns to the same shelf opening.

Euclid has no difficulty taking inventory. Workers move the scales from the weighcounting lines to production stores. Then they weigh each pan to figure how many parts are in each. This does away with handling each separate item as in a manual count. ♦

Long loads no problem

A HYDRAULIC CRANE reduces construction costs for the D. C. Bowman & Sons, Inc., a St. Louis contracting firm. The company designs and builds private railway track.

The crane unloads 28 tons of rail an hour. For years, the firm rented cranes for its jobs, such as unloading the rails and setting them on ties. Then they decided to buy their own crane.

In building a side track, the crane pulls a car of rails attached to the hook at the rear of the crane's frame. With the boom, reaching out as far as 35 feet, it sets the rails close to where needed on the ties.

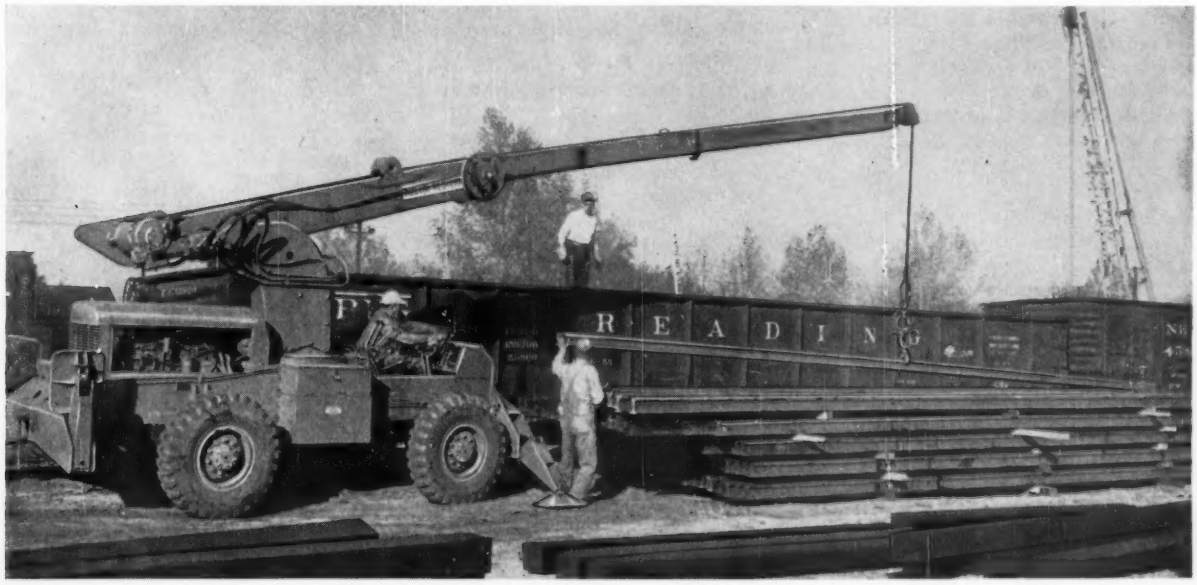
In building railroad track, the crane lifts bundles in a cable sling holding up to 20 ties. Each tie weighs 150-200 lb. It lifts them from where they're dumped out of a motor truck, takes them close to the point they're needed on the road bed. It also unloads bundles of up to 40 ties from railroad cars.

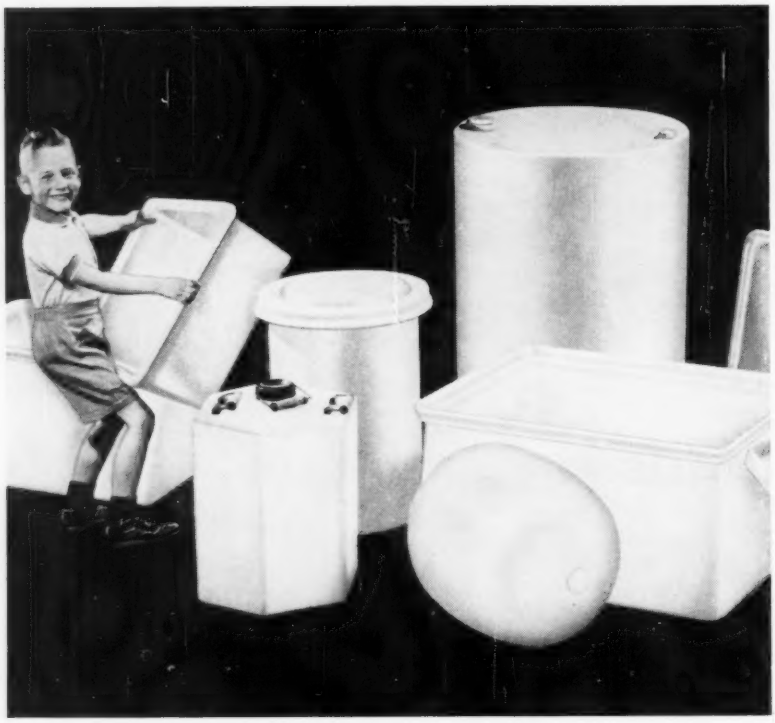
In the first 20 months, the company rented the crane out on enough outside jobs to bring in $150 a month above the operator's wages and fuel.

They used the crane an average of 4 hours a day, including the time it was rented, for a total of 1,000 hours a year.

"Even at half-time, the machine cost has been just under $5 an hour. And the operator's wage, with an allowance of 20 percent for idle time in which he can inspect and care for the machine, adds $4 an hour, making $9 an hour halftime use cost," company officials point out.

"Our costs do not include overhead. This is a close margin showing a modest rental profit on a 1,000-hour total use basis. When used 1,500 hours a year for our own and rental purposes, the yearly cost will be increased by about $270, and the machine cost lowered by $1.50 an hour." ♦





Read about this money-saving new way to get rugged, custom-made containers:

Now..Cut Handling Expenses with Low-Cost Polyethylene Containers

Because made-to-order containers can reduce your materials handling expenses, it will pay you to know about Thermofusion* — the revolutionary new manufacturing process that lowers the cost of custom-made containers. Introduced in this country by Spencer Chemical Company, the Thermofusion process permits economical production of rugged polyethylene containers in almost any size or shape — even in small quantities!

Using versatile thermoplastic resins, containers can be made to fit whatever physical properties your job requires—weather resistance, nestability, etc. Not only size and shape, but also wall thickness and rigidity can be varied to meet your exact specifications. Reinforcing frameworks of other materials may also be included for extra strength.

Tough, durable containers made by the new Thermofusion process offer you these important advantages:

- High impact strength and durability
- Lightweight and quiet handling
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- Seamless surfaces that are smooth, snag free and easy to clean
- No odor absorption or transfer of color to goods

Problems solved! Several selected companies are now making containers by the Thermofusion process. We can put you in touch with a money-saving source of supply. No obligation. Just write Spencer at the address below.

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Good

EXTRA-WIDE BAYS at the receiving-shipping dock save time. They eliminate jockeying 50-ft. trailers. We saw 13½-ft.-wide bays at the new Mead Container Co. plant in Louisville.

The plant makes corrugated boxes. There are 9 acres under roof on a 38-acre site. This plant serves a radius of 120 miles around Louisville.

District Manager Philip J. Miller told us the dock originally took 14 truck trailers. Mead cut this to 10 spaces. The firm also saves time with specially fast 15-ft.-wide overhead doors between plant and dock. They open in 7 seconds, close in the same time. They keep heat in, dirt out.

Each dock bay has a 6 x 8-ft. adjustable lip dockboard. They can rise to 29 inches above dock height (with lip extended) or depress 11 inches below dock height. The dock is 50 inches high. The dockboards work like this:

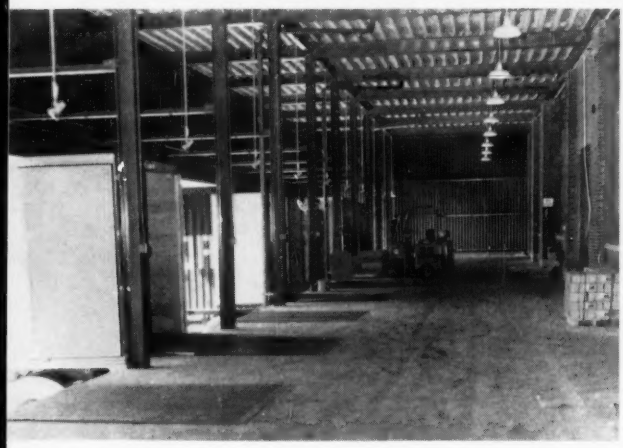
A worker pulls a handle, releasing a spring that raises the board to full height. He pulls another handle which jumps out the lip. Then he steps on the board, making it float down until the lip rests on the trailer. The dockboard becomes an extension of the concrete dock floor.

Said Miller: "We didn't have dockboards at our old plant. We found out, however, that we really need them. They're just excellent."

Mead also receives from rail sidings. One siding inside the plant can take 22 cars at a time. A parallel siding, outside the plant, can take 25 cars. A bridge lowers from the outside walk, bridging the inner siding. This enables goods to move directly into the plant from the outside cars. They're considering receiving by barge because the plant is right on the Ohio River. ♦

receiving is better with plenty of space

TRUCK TRAILER unloading and loading is fast and efficient with fork trucks moving over adjustable dockboards. Specially wide bays enable trucks to back in with one pass, save considerable time.



SIDING inside the plant can hold 22 rail cars at a time. Halfway down on the outside wall is a bridge which pulls down across the inside siding. This enables the plant to receive from a parallel outside siding.

THREE DOORS lead from the plant to the dock. They're 15 ft. wide. Specially fast motors open and close them in 7 seconds.

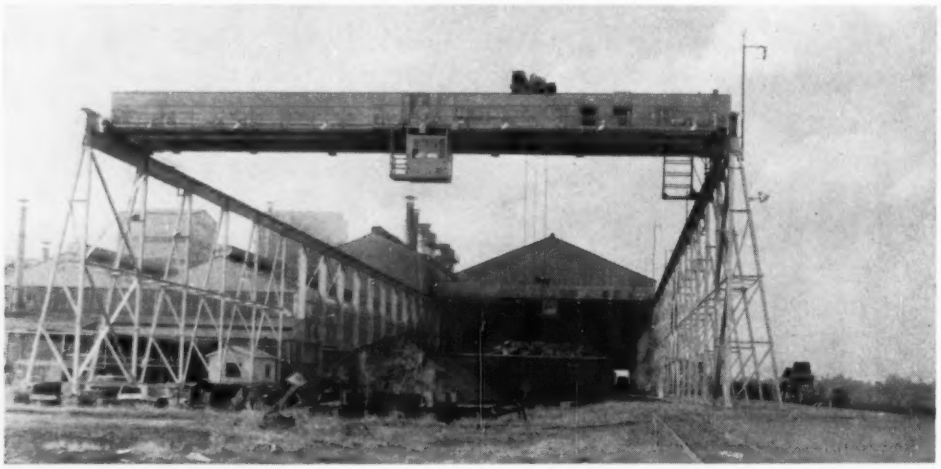
Receiving and the follow through

INTERNATIONAL HARVESTER Co.'s Louisville Works makes farm tractors, motor truck engines, and automotive parts. It receives a wide variety of materials in many different ways. IH plans receiving with a follow through, that is, with the first step of production in mind.

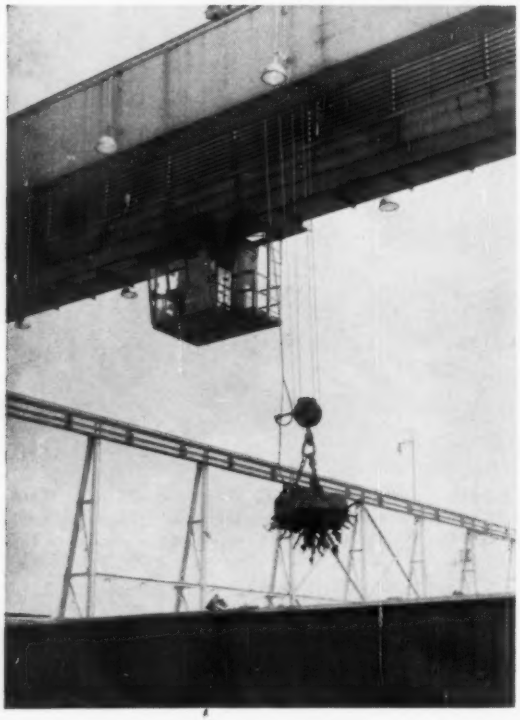
The hungry foundry

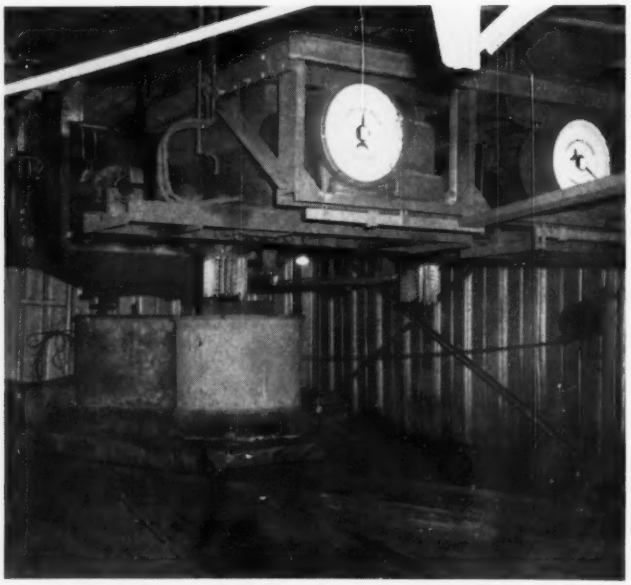
Scrap arrives in gondola cars which were loaded from Ohio River barges. Three 10-ton bridge cranes with magnets unload scrap from the rail cars into huge bins.

The follow through. The same cranes lift scrap from the bins to weigh hoppers. Hydraulically-operated bottoms drop from the hoppers, send the scrap into buckets on transfer cars. These cars get coke and limestone from other weigh hoppers. The transfer cars then move by rail alongside cupolas where a crane picks up the bucket and dumps into the cupola.



THREE BRIDGE cranes serve the foundry yard, can move under the shed roof to fill bins and hoppers.



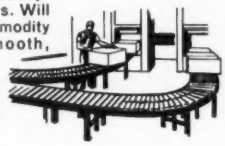


TRANSFER CARS get scrap, limestone, and coke from weigh hoppers, carry charge to the cupolas.

SIXTEEN ways to cut your costs with Standard Conveyors

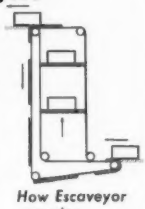
1. Gravity Roller Conveyors

For rolling away your high handling costs using the free power of gravity. Widest range of styles, widths and lengths for light, medium and heavy-duty applications. Will carry any commodity having one smooth, firm surface. Carrying capacities from 35 to 8,000 lbs. per roller.



2. Vertical Conveyors

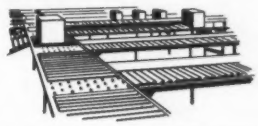
New "Escaveyor" loads itself, unloads itself, lifts 10 cartons per minute with speed and continuity of a belt. Needs only 12 sq. ft. of floor space, costs less to buy than most other types of lifts. Investigate! Conventional reciprocating lifts and tray-type lifts are also available.



How Escaveyor operates.

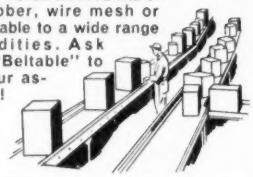
3. Live Roller Conveyors

Choose Standard's powered rollers for completely automated conveying. Ideal for abrasive materials such as castings and heavy boxes. Many styles, widths and carrying capacities.



4. Belt Conveyors

Horizontal, inclined, declined—or a combination of all three. Belts of canvas, rubber, wire mesh or steel. Adaptable to a wide range of commodities. Ask about the "Beltable" to simplify your assembly work!



5. Portable Conveyors

Cut costs of loading, unloading, elevating, stacking and piling—even of many assembly operations. Get complete information on Standard's Handibelt, Handipiler and Partsbelt—the "Big Three" among cost-cutting portable conveyors!

Portable Handibelt is easily adjusted to wide range of inclined, declined or horizontal conveying jobs.

6. Pneumatic Tube Systems

Expedite your in-plant communications—provide swift, sure, safe transportation of engineering drawings, messages, samples and parts with "air" transportation. Cylindrical or oval carriers. Completely automatic or semi-automatic systems available.

7. "Do-It-Yourself" Conveyors

Save up to one-third the cost of your next conveyor with "off-the-shelf" ordering and "do-it-yourself" installation. Handidrive Conveyor Handbook describes all the components you normally need and tells how to use them. Cut your costs! Send for this valuable Handbook today!

8. Spiral Chutes and Slides

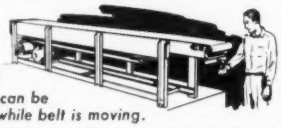
Down go costs when you install a spiral chute to lower cartons, cases, sacks and similar commodities. Closed or open types for virtually any height and from 12″ to 66″ in width. Also available in stainless steel.

9. Dish Tray Handling Systems

The efficient, compact and economical way to handle trays of soiled dishes. Available with automatic loading and unloading. A wide range of kitchen and cafeteria conveyors also available. Send for Traylift/Traybelt catalog.

10. Truck Loading Conveyors

Cut loading and unloading costs with Project-O-Veyor, Standard's labor-saving extendable conveyor. Now available in either stationary or portable models and with either manual or push-button boom controls.



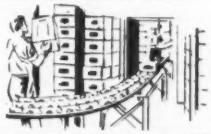
Length of conveyor can be changed while belt is moving.

11. Mail and Record Handling Systems.

A Standard Recordlift System cuts the cost of distributing mail and other material in multi-story buildings with push-button speed and efficiency. Has automatic, multi-station pickup and delivery. Eliminates the need for interfloor messengers. Write today for Recordlift bulletin.

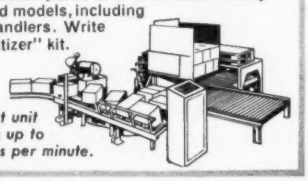
12. Wheel Conveyors

Highly useful because of their low cost, light weight and ability to operate at minimum slope. Wheels available in many sizes and styles mounted in two, three and four-rail frames. Aluminum or steel.



13. Carton and Case Stackers and Unstackers.

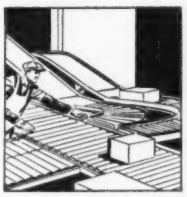
Save handling costs by reducing man-hours needed to stack and unstack pallet and unit loads. Many standard models, including pallet handlers. Write for "Unitizer" kit.



Compact unit unstacks up to 45 cases per minute.

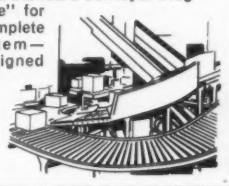
14. Warehouse Storage and Sorting Systems

Where commodities must be sorted quickly and stored systematically, a modern conveyor system can do much to reduce your costs. Designing such systems has long been a Standard specialty. Write for particulars.



15. Custom Engineered Conveyor Systems.

More than 50 years of experience makes Standard Conveyor a logical "first choice" for quoting on a complete conveyor system—specifically designed to cut YOUR handling costs. Inquire today for details!



Standard Conveyor COMPANY

Sales and Service in Over 40 Cities
Look in your Yellow Pages under "CONVEYORS"

The Sixteenth Way? Inquire today for literature.
Simply circle the appropriate numbers below, sign your name, clip the coupon and attach it to your letterhead. Mail it to Standard Conveyor Co., 301-A Second St., North St. Paul 9, Minn.

YOUR NAME_____

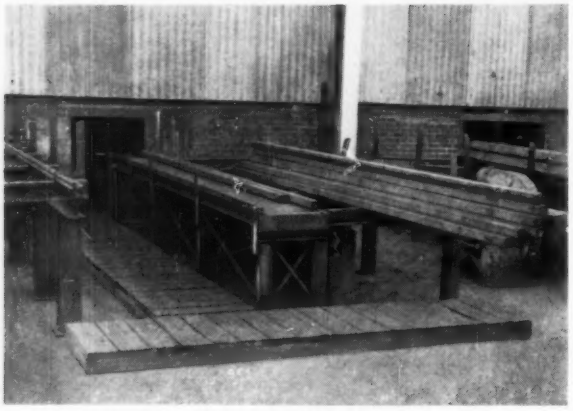
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Circle **88** on Reader Service Card

RECEIVING AND FOLLOW THROUGH

ROWS OF BARS are built and maintained neatly by the bridge crane that unloads cars and trucks.

ROLLER CONVEYORS feed directly into large shears inside the building. These cut the bars to short lengths.



Bars for the forge operation

Steel bars arrive by rail and truck. A 10-ton bridge crane lifts them out, builds neat piles in the yard outside the forge shop.

The follow through. The same bridge crane carries bundles of bars to roller conveyors which lead through openings into the forge shop. The conveyors carry the bars directly to shears which cut them into short lengths. The next step is the forge presses.

Sheet metal gets soap coating

Rail cars and trucks carry bundles of sheet metal to a building, unload right inside. A 5-ton bridge crane which travels the length of the building uses a grab to unload the bundles, stacks them on the floor.

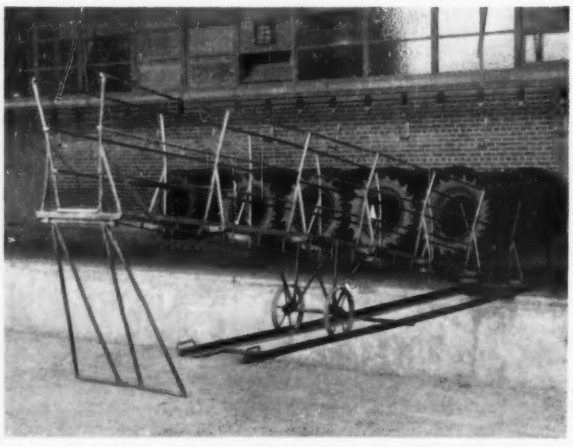
The follow through. As sheets are needed, the bridge crane moves a stack to the shears. The next step, soap coating, once was difficult and clumsy. Now IH does it neatly. An overhead conveyor carries the cut sheet metal on special racks. The racks go first to a washer that removes light oil from the sheets. Then the racks travel to a chamber where a tank rises, immersing the sheets, coating them with soap. After drying, the sheets move to the press room for drawing.

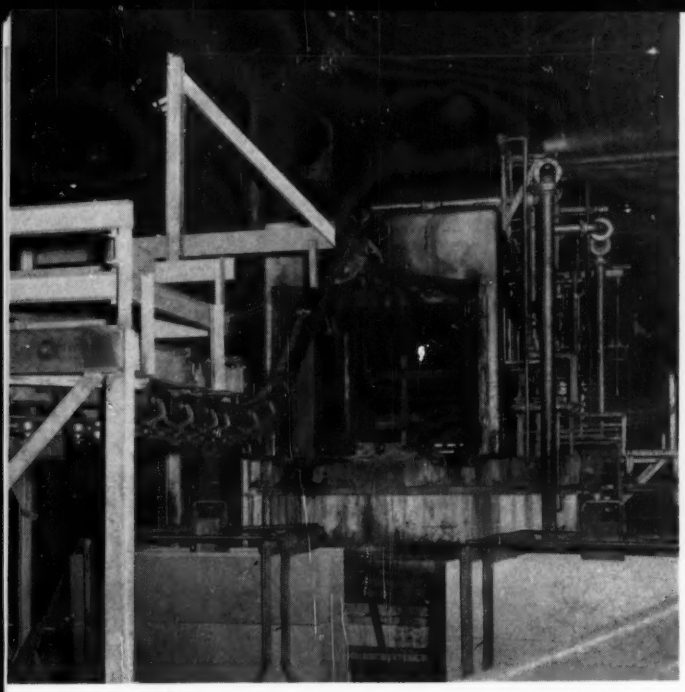
Preassembly parts storage

IH receives tons of small parts, spark plugs, generators, bolts, hydraulic valves, and so on. These come palletized in corrugated cartons, brought in by truck to a receiving dock outside the production stores department.

They used lift trucks to carry the loads to the inspection department. After approval, the loads again were picked up by lift truck and placed in racks.

To avoid rehandling. IH now carries palletloads of small parts from the receiving dock directly to storage racks. Inspection gets only one carton from the palletload. Every carton on the pallet gets a lot tag and the pallet goes into any available rack opening, with the opening designated on the tag. A duplicate tag goes into a control file. When production orders a part, the worker finds the location from the control file. The system is first-in-first-out because tags for the early shipments come up first. The lot number remains with the palletload until all parts have gone to assembly.





SHEET METAL in racks is carried by overhead conveyor to tank which rises to apply soap coating.

IH PLANS CHANGES for this old storage area. Space between racks will be cut to 7 ft. 6 inches. They'll use narrow aisle trucks and stack four loads high. IH figures to get 30 percent more into the same space.

Rims, tires are preassembled

IH receives tires (left) by rail and truck. Tires are rolled out of the truck down the portable ramp that bridges the rail siding. The siding is below ground level. The tires go on conveyor hooks for a trip to the manufacturing building balcony where they're stored. Tractor rims are brought in by truck, stored in the yard.

The follow through. Tractor rims are carried by conveyor to the balcony where they meet the tires. Rims and tires are assembled and line-scheduled for the proper tractor. They're moved by conveyor from the balcony right to the tractor assembly line.

Preassembly yard storage

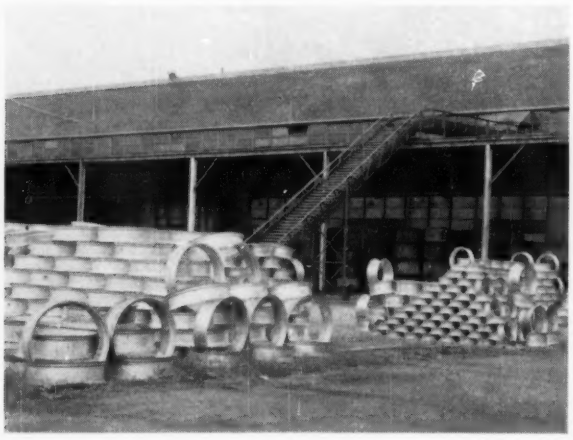
Palletized engine blocks and heads await processing by engine assembly. They're stored between the foundry and the assembly building. IH also stores in the yard pallets, molds, metal boxes, and certain supplies.

Standard pallets

International Harvester moves almost all material on a 42 x 42-inch standard wood pallet. The pallet also serves as the base for a pallet box. The boxes may be 18, 24, or 42 inches high, with a lid. The box is held together by 13-gage wire.

All IH plants use these pallets inside the plant, to move material from one plant to another, to ship products to customers. And they're supplied to vendors to ship products to IH plants.

Two workers at the Louisville Works spend full time keeping the pallets in good repair.



How they're receiving

Hyster

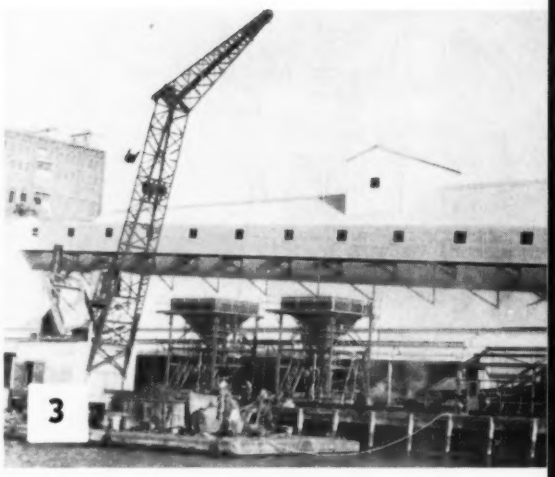
1 Ampex Audio, Inc., Sunnyvale, Calif., receives, inspects, and stores a quarter of a mile away from its main plant. Lift trucks and shuttle trucks move the materials.

Two pneumatic-tire lift trucks load shuttle trucks. The shuttle trucks make 6 or 7 round trips a day. They carry parts and cabinets to the plant, bring back finished home music systems to the warehouse.

The equipment requires gentle handling. They stack large items, such as console cabinets. Smaller units and subassemblies go on pallets or are handled in skip boxes by the LP-Gas trucks.

On the return from production, finished products are stacked in storage. Console models are stacked in their reinforced packing cases. Smaller sets are palletized and placed in pallet racks.

Ampex Audio says the twin lift trucks are versatile, maneuverable in close quarters, and handle safely. They keep goods moving and keep handling costs down.



2 Whitehead and Kales Co., Inc., Detroit job shop, ships finished products immediately, partly because of an ingenious receiving technique.

Not only that, they must move steel stock quickly from place to place in manufacturing. They set up complete production lines for each new job.

A typical production job: one recently undertaken for one of the Big Three auto manufacturers.

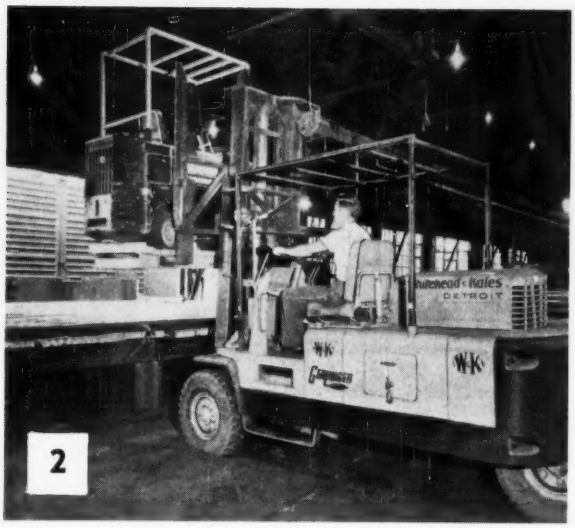
The job involved adapting steel automotive axle racks —already in use in boxcars—to meet new specifications dictated by design changes in the latest cars. The company uses metal boxcar racks for shipping automotive axles, motors, etc.

Here's how it was done.

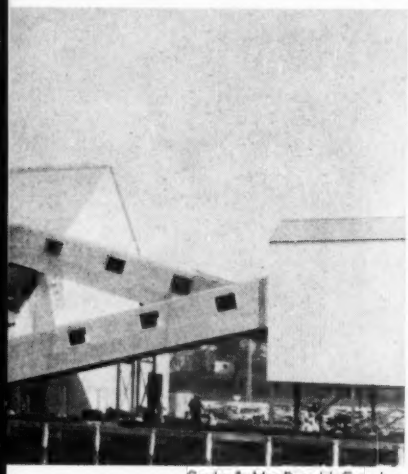
- Remove incoming racks from railroad cars by a 3-ton capacity lift truck that operates on a portable receiving dock. It's lifted on the dock by a 5-ton fork lift truck. They use a special steel platform tapered at one end. No ramp is needed.
- Place the racks on a conveyor system, which carries them through a conversion production line.
- Deposit the racks on a second dock, where another fork truck carries them to a boxcar.

Whitehead and Kales report they can handle larger loads with greater safety, and in fewer trips with the 5-ton truck. They say they do heavy moving jobs twice as fast as they used to do them.

National Vulcanized Fibre Co.



Towmotor Corp.



Coyle & MacDonald Co., Inc.

Dolin Metal Products, Inc.

3 Machinery to double its rate of raw sugar unloading was recently installed on the dock of one of the largest sugar refiners on the East Coast. Refined Syrups & Sugars, Inc., of Yonkers, N.Y. now handles 300 tons of raw sugar an hour.

Bulk sugar, unloaded from ships by floating crane, goes into hoppers. Automatic conveying equipment and bucket elevators carry it to a cargo scale at the end of the conveyor run.

The 6-month, $200,000 job was installed without interfering with refinery operations. They used mobile equipment for unloading and hoisting machinery and equipment. All work was done from a dock alongside the refinery.

4 Suppose you were responsible for stocking 300 different electric shaver parts with an inventory of well over a million of the tiny, fragile items. How would you store them to prevent damage, loss, and confusion?

You probably are saying "with an orderly system." That's exactly what Schick Incorporated, Lancaster, Pa. decided. They now store parts in a tray shelving they devised themselves. Vulcanized fibre trays, fitted with drawer pulls, hold parts they used to keep in boxes spread out over a storeroom floor.

The 300 different types of shaver parts are maintained by Shick as replacement parts for old shavers. They cannot store these parts with current production material kept in large open bins.

The trays fit into the openings of long, narrow, sections of open steel shelving. The tray shelving, 40 feet long, 7 feet 3 inches high, contains eight shelves a section. It fits flush against a partition dividing the storeroom from production. The tray shelving is only 18 inches deep. The trays are kept in numerical order. There are four tray sizes.

The results: better storage, better housekeeping, and a clear gain of 800 sq. ft. of space.

5 The Federal Aviation Agency, New York International Airport, tripled the capacity of its parts storage.

Lack of space compelled them to store in several different places all away from the main hangar. This slowed repair and maintenance. They stored in typical back-to-back rows of standard shelving with an aisle between every two rows.

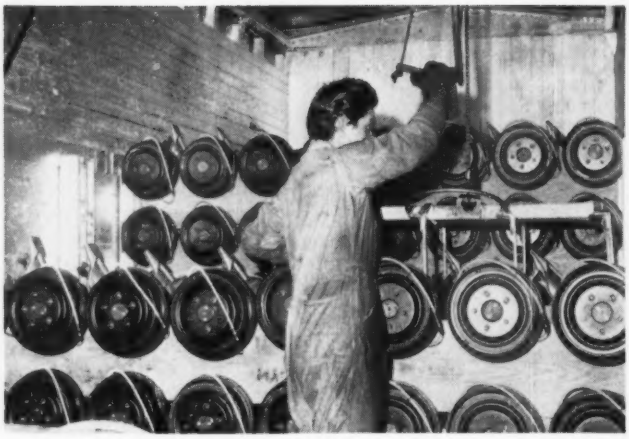
It didn't take Federal long to switch to a special storage system when they found it gave them 910 shelves in the area that formerly held only 307. They not only could consolidate all the parts into one area, but they would have 300 shelves for expansion.

Now, pairs of shelving units are mounted back-to-back (double face) on individual special mobile bases. They roll along tracks countersunk in plywood sections on the floor. Two rows are placed in front of a rear fixed (nonrolling) row of shelving units with only three inch clearance between the rows.

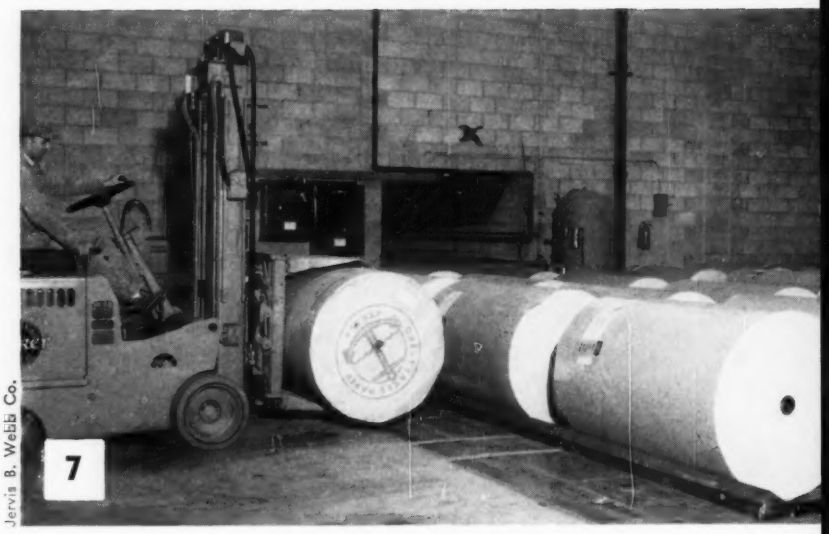
It's easy to roll any mobile unit to get at any rear unit. A stock picker, with a simple push, moves a mobile unit that holds over a ton of parts.

Stock pickers locate units quickly. Stenciled code numbers on the floor indicate positions of each rear fixed unit. Overhead metal flags indicate the position of each rear mobile unit.

6



How they're receiving and storing


7

Jervis B. Webb Co.

8

9

6 Ford Motor Co. (San Jose) receives in carload lots, uses specialized handling equipment in its receiving and storing operations. Key to efficiency is the large selection of tiering racks that handle just about every piece of merchandise received. Some material is transferred to the racks on arrival. Photo (right) shows a worker using a multiple hook to move 4 axles at a time from a boxcar to a rack. Sometimes Ford supplies local vendors with racks, thereby eliminating the transfer of material. Trailers, too, are designed for the product, as shown in the photo (left). The tractor trains are assigned specific routes for hauling loads from dock to storage and returning empty trailers.

7 Fork truck attachments are a fast-developing factor in receiving and storing. At the St. Paul Dispatch-Pioneer Press a roll handling attachment and a 500-foot tunnel conveyor work together to feed newsprint to the press room. The newsprint rolls arrive in rail cars, are unloaded by the lift truck. Some are stored on end, four high. Others are set on kicker plates parallel to the conveyor. The plates propel the rolls, four at a time, onto the conveyor belt. The system is automatically operated and synchronized from end to end by a series of electric eyes. When fully loaded, the conveyor carries 130 rolls. Slats of the conveyor are rubber-coated to prevent load slipping.

8 The Eaton Axle Division has a formula for receiving and storing heavy, irregular parts. (1) Design your handling methods to fit the parts. (2) Unitize them in big lots. (3) Receive and store in your own racks, pallets, containers. Eaton supplies shipping containers to its vendors, has cut handling costs as a result. All this makes it possible for 2 men with one fork lift truck to handle all receiving. They load all material onto a trackless train that carries parts to storage. Truck axle housings, for example, come banded in packs of 20, specially designed by Eaton. The packs stack easily, can be unloaded quickly by lift truck. Photo shows the company's storage area for them. Housings left over when an order calls for less than 20 go by overhead crane into racks, are protected from damage, don't clutter the area or get lost. They are instantly available for production.

9 Walkie-type lift trucks are a versatile tool in receiving and storing operations. They are maneuverable in trailers and rail cars, and operate well in narrow aisles. At a Raytheon plant, returnable wire containers team up with an electric powered walkie to expedite the storing of castings and forgings. The parts are placed on canvas linings in the containers. The walkie operates in the stores area, spotting loads of material and handling stacks of empty containers. The wire containers fold flat on their bases for easier storage. In the company's huge stores section, the battery-powered walkies run 25 miles each 8-hour shift. ♦

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  Clear vision assured by windshield and left, right, rear and roof panels of unbreakable glass. Screen insert in rear checks carbon monoxide. We can also furnish this with safety glass windshield and electric windshield wiper on request.
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  2-way zipper can be opened from inside or outside. Will not rust, freeze or corrode.

WHEN ORDERING
When ordering give make, model, capacity and specify whether machine has factory guard or LP gas tank.

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Low Cost ■ Easy to Read ■ Compact ■ Easy to Handle
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Why buy a system?

THE BIG MATERIAL HANDLING REVOLUTION is in your head. If you're keeping up with the times, you're thinking systems instead of equipment. Enlightened consultants, manufacturers, and distributors are traveling this road with you. In fact, the consultants are leading the way.

A material handling system is a plan involving two or more pieces of equipment operating interdependently. Axiom: some plan is better than none. Conclusion: buy a system.

But that's an oversimplification. Material handling manufacturers, distributors, and consultants give this advice:

- Think system—it's not enough just to buy the pieces and assemble them.
- Think system but don't expect to buy one right off the shelf. A system develops from an analysis of your plant.
- Think system or get a consultant to do it for you. But don't be surprised at difficulties you may encounter. Few equipment sellers will be responsible to see that a system works.

There are some manufacturers and distributors who make certain their systems work. In fact, some of them sell a lot of service.

But, says one consultant, material handling needs many more manufacturers and distributors who will stand behind this platform:

Here's the system for you—I'll put it in—I'll see that it works.

A SYSTEM GUIDE

1 Open your mind. You can't be too small or too large to benefit from a system.

2 Don't expect to buy a system from a shelf; they're not supermarket items.

3 Think system, but buy what you can. You don't have to put it all in at once to benefit.

4 When installing part of a system, be sure you pick the portion that gives maximum return. This is not always obvious.

5 Know your product thoroughly. Understand each step it goes through. Be prepared to provide floor and building layouts to your consultants.

6 Have one man in your plant responsible for a total view of material handling.

7 Work with manufacturers, distributors, or consultants who will stick with a system until it works.

8 How you let bids for a system is your business. But remember, someone provided a lot of engineering time to present you with a plan. Your responsibility should be clear.

9 Keep this in mind: there are few companies that cannot afford the system their business truly requires.

All or Nothing at All?

Few companies cannot afford the system their business truly requires, says another consultant. They need not buy the entire system at once.

"I don't recommend your buying all or nothing," he says. "But I insist on your squarely facing the job to be done, not just considering what you can afford. Project what the equipment you want will do to your whole operation."

He gives this example. A user has a 4-floor plant. He wants a system for one floor. But this can be unfortunate if he fails to look at handling on all his floors. He must consider what a system on one floor will do to the others.

A veteran distributor adds: "In a going plant we gradually work in a system without upsetting the normal production. We begin modestly, then let the system grow."

Warning: you may buy part of a system, but the wrong part. You must consider the entire system to be certain you first buy the part that will give the highest return. Who decides? You, your consultant, other engineers, suppliers, manufacturers, any or all.

A material handling manufacturer looks at it this way. You'll save money if you buy equipment that fits into an entire system. For example, you might have two bays but can afford a system in only one right now. If you spend an extra $100 now for a crane interlock, you won't have to buy a second hoist when you systematize the second bay—a possible savings of $900.

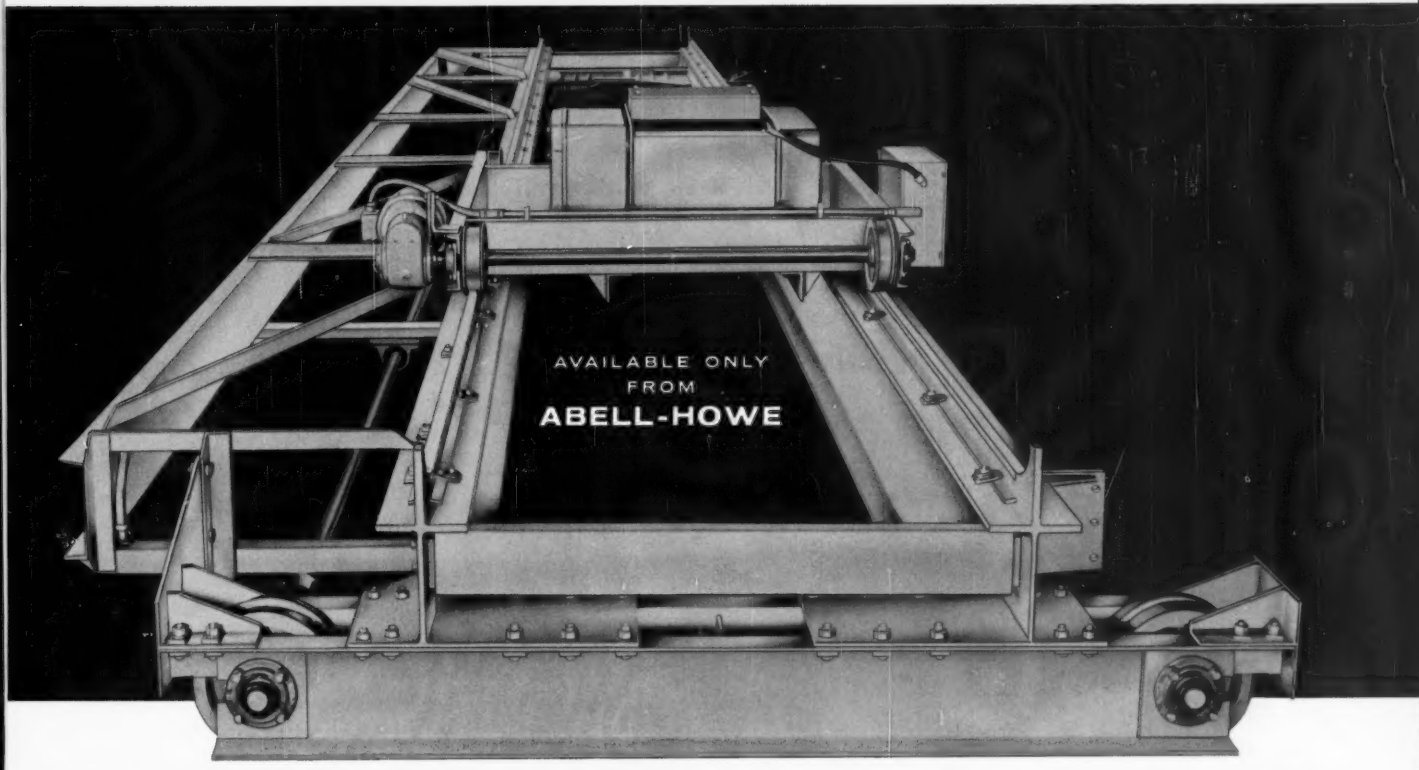
As for affording a system, a distributor says he first determines whether the system will justify the expendi-

Continued on page 72

Circle 112 ⟶

A NEW EXPERIENCE

IN OVERHEAD HANDLING EASE AND ECONOMY



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Make no mistake—this is no ordinary, run-of-the-mill crane. Here is more crane quality—more modern design per dollar than you can get in any other crane built today. Direct drive, of course . . . die forged, machined alloy steel wheels with tapered tread . . . precision ball or roller bearings plus every other feature you want.

The result is the quietest, slickest, most maneuverable crane of them all. You can actually see, hear and feel the difference.

Those men who have already selected the all-new Cranemaster agree it's a honey—the best one yet. You can read all about this new experience in overhead handling ease and economy in a new 12 page Cranemaster bulletin, ready now. Or drop us a line and we'll come calling with some interesting facts and figures.

New 12 Page Catalog tells why Cranemaster can't be beat in performance or price! Ask for Bulletin.

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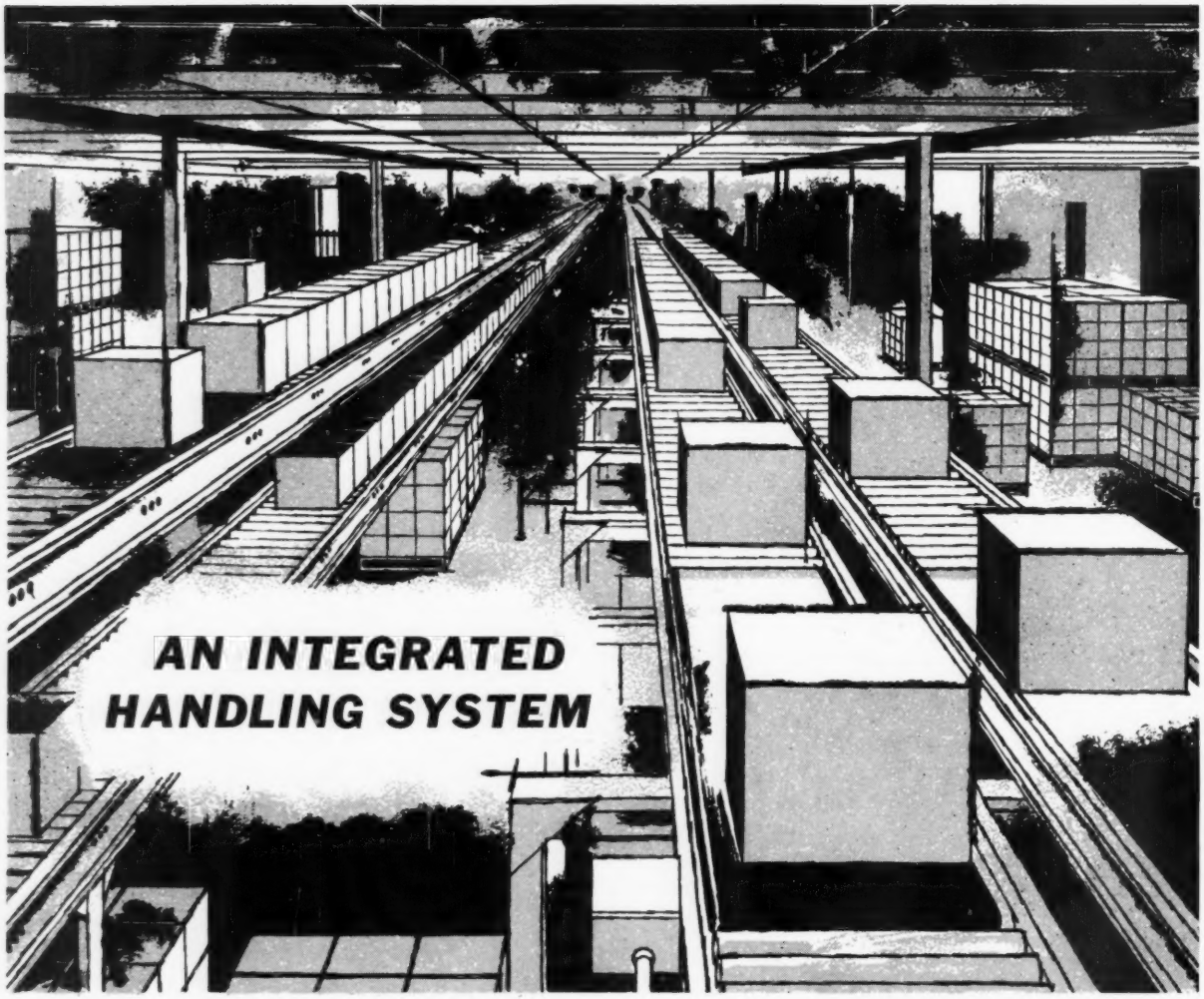
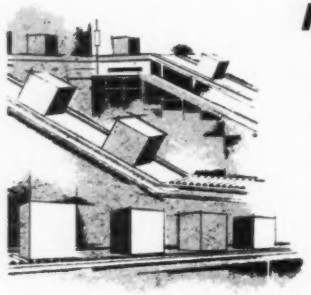


Overhead conveyor system in food processing plant saves thousands of square feet of floor space.

...Engineered by ALVEY...



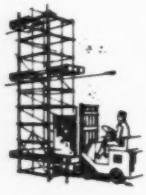
May Cut Your Package Handling Costs

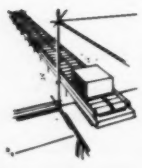
It doesn't pay to buy conveyors piecemeal. You don't have to throw away your present equipment and start from scratch, either.

Alvey's experienced package handling engineers can show you how to coordinate the workable parts of your present system with new elements for faster, easier, less expensive materials handling.

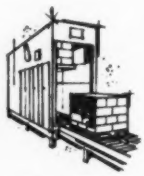
Or, they can build a complete system for a new plant, or total modernization program.

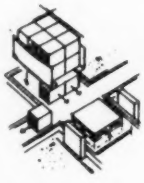
Remember, it's often more profitable to cut processing and handling costs than to make new sales. Call in Alvey, and reappraise your handling methods now.


Vertical Lift Conveyors

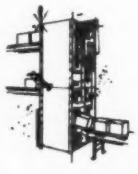

Telescopic Boom Conveyors

Air-Chain Conveyors


Pallet Loaders


De-Palletizers

Traffic Cop


Vertical Indexing Conveyors

ALVEY CONVEYOR MANUFACTURING COMPANY

9299 Olive Street Road, St. Louis 32, Mo. • *Branch Offices in Principal Cities*

Circle **103** on Reader Service Card

YOU CAN SAVE ON ELECTRIC TRUCK POWER THREE WAYS

1 **Get more battery capacity per dollar per year.** For years, Exide-Ironclad Battery users have consistently reported unequaled battery economy. Now the new TGS Exide-Ironclad Battery gives you another 11% more capacity with no increase in battery size. Your trucks can do still more work per shift, and you get greater economy than ever.

2 **Use efficient chargers.** Exide vertical chargers are specially designed for industrial truck service. They give you actually more charging capacity for the price. Vertical design saves two-thirds floor space, keeps out dirt for lower-cost upkeep. Oversize bearings, dual-protected by bearing seals and external dust shields, prolong charger life.

3 **Keep your equipment functioning.** Regular inspection by capable service men is a real economy measure. And no service matches Exide service—over 160 men in 47 offices coast to coast. All are factory trained—specialize in Exide industrial batteries and chargers. They help you get the maximum life and economy from your batteries.

GET THE COMPLETE EXIDE POWER PACKAGE: BATTERIES, CHARGERS, SERVICE. For additional information, write Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

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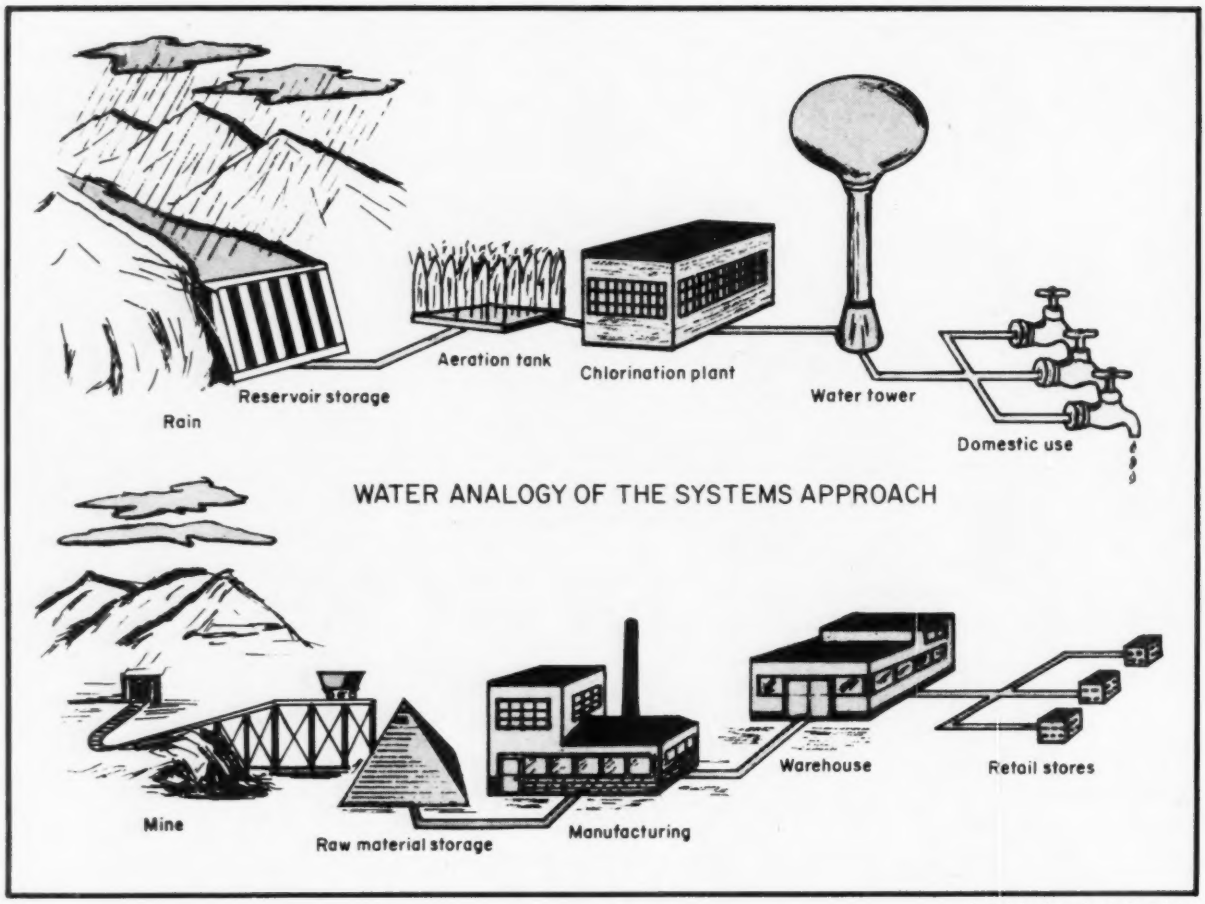
Exide®



E. Ralph Sims, Jr. & Associates

ture. Then he makes some sort of arrangement that will enable the customer to pay.

To Get Better Handling

You'll find engineers, consultants, suppliers, and material handling manufacturers divide pretty much into two groups:

- **Systems thinkers.**
- **Nuts and bolts thinkers.**

The systems thinkers cost more because they work out an entire plan before they talk equipment. The equipment is only the tools of the system. Good systems thinkers also follow through, see that their ideas work after you turn on the switch.

The nuts and bolts men put forth only enough effort to sell you the equipment. What you do with it, they feel, is your business.

Unfortunately, many small and medium size businesses, and even some large ones, little realize that they can least afford nuts and bolts men. Smaller firms desperately need the systems to go with the equipment. Systems cost more than nuts and bolts because those supplying systems can't afford to give them away. (See the High Cost of Free Engineering in MATERIAL HANDLING ENGINEERING, April 1960). But the smaller plants haven't the help to develop their own systems.

On the other hand, large firms often realize the importance of systems. They frequently buy the ideas along with the equipment, even though their own men are capable of working out the ideas.

In working up systems, one distributor gets a layout of the customer's plant and machines. Then he puts two engineers on the job, to get two different ideas. This may take weeks, he says, but it gives the customer variety and service. Sometimes, he admits ruefully, this only makes friends, not business.

For systems in new plants, a material handling manufacturer calls for a floor plan of the plant and machines, suggests that the company talk to handling men before putting up the building. This manufacturer tells about a customer who built 15-ft.-high ceilings, put in 10-ft. machines, and handled a 3-ft. product. This allowed only 2 ft. for an overhead system, certainly a near impossibility.

Fortunately, reports a consultant, many customers are awakening to the vital aspects of systems. The field is emerging from the mill supply house sale to the engineered sale. This is accepted by all the smart customers and, he says, there aren't so many dumb ones anymore.

But you still find this. A material handling manufacturer says he provided a complete engineering study for a customer, who blithely announced he planned to let bids on the plans. The manufacturer protested on grounds that the engineering work had cost his company a good deal of money. But the cus-

Lift truck pays for itself in six months at Kansas City clay products plant

Seven tines on specially designed fork fit into row of pipe, pick up any number in multiples of seven.

Yard manager is pointing to notched spacers they developed for efficiently handling clay pipe with lift truck.

It often takes two things to make or save money — a good idea, and good equipment to carry it out. The yard manager at a Kansas City, Missouri, clay products company supplied the idea. For equipment they purchased an Allis-Chalmers truck — a 4,000-lb model with pneumatic tires. Here are the results:

Previously, 8-in. sewer pipe was hand loaded, one piece at a time, very gently to avoid chipping. Now the pipe is stacked in rectangular units. Notched boards between rows serve as spacers. Tines on the specially designed forks slide into the bottom row of pipe and pick up any number in multiples of seven. Usually, pipe is loaded 28 at a time. There is no longer any manual handling required in loading pipe.

By increasing productivity of the men, the yard manager estimates that the Allis-Chalmers lift truck saves $1,200 a month, or conservatively, $10,000 a year.

The truck operator points out that the Allis-Chalmers lift truck contributes to another important saving. Its precise control and ease of handling has helped reduce chipping and breakage to almost zero.

Let your Allis-Chalmers dealer show you how the right lift truck can make a dollar-saving difference in your plant. Call him today. Allis-Chalmers, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

POWER FOR A GROWING WORLD

The operator of this Allis-Chalmers lift truck likes the fact that it handles so much like a car, says driving it was automatic right from the start.

This operator in another of the company's plants says, "I've driven four other makes of lift trucks, but this Allis-Chalmers beats them. It's the biggest we have, but we can work it in areas where we can't work the others because it maneuvers so easily. It's best in toughness, too — in one rough area we wreck transmissions in other trucks but it doesn't bother this one." BH-148

Circle 4 on Reader Service Card

tomer, a vice president of the company, said he still intended to take bids and asked: "What's wrong with that?"

Types of Systems

They break down clearly into:

- Industrial truck systems (virtually everything on wheels).
- Conveyor systems (including monorail, hoists, elevators, tow lines, etc.).

Seldom do these overlap. A plant usually calls for one or the other, generally can't use both equally well. Says a material handling manufacturer, smart firms feel there are places for both systems and they do no good pushing conveyors over trucks if trucks are plainly indicated, and vice versa.

But, among suppliers of MH equipment, there is a divergence of opinion here. A manufacturer says he sells conveyor systems only, that he doesn't care to be a broker for truck systems because he feels his men can't become experts on everything in the field. Where many different types of equipment are needed, he says, it's better for a group of suppliers to work together. Another manufacturer says sometimes the major supplier for a company acts as a general contractor for the entire job.

But the MH distributor, whose lines include almost all types of equipment, feels his engineers can propose systems more objectively. Our men are neutral, he says. They don't misapply equipment because they handle all kinds. He says his men point out to customers that there are services available, not just equipment. And this distributor says service should precede a sale.

Another MH manufacturer, however, says his men will turn down a job if they feel another type of equipment will work better. He has the staff to plan from receiving through shipping. However, he prefers to work with consultants, rather than use his engineers as consultants. "We're not trying to compete with consultants," he says, "although our registered engineers could." On the other hand, this same firm sometimes has to suggest systems to small firms that can't afford to hire consultants.

Advantages of a System

You must justify your system, be able to show a tangible return. It must save in labor, inventory control, customer service, or any other of a hundred ways. There are many considerations, however. For example, you may be considering a $100,000 system. You find that spending only $80,000 gives you 95 percent of the benefits. On the other hand, the extra $20,000 may move your goods faster to your customers. If your business depends on quick service, the extra $20,000 is well spent.

Remember: a system may justify itself on paper. But this does not mean you must buy the whole thing at once. Smaller companies sometimes take this attitude: if I were as big as that billion-dollar corporation, I could put in the perfect system. Such com-

RAYMOND®
New Pallet Handbook

FREE 16-page booklet tells how to select, load and handle pallets; how to estimate pallet requirements; plus ways to increase your present warehouse capacity as much as 50%. Send for your free copy today!

The RAYMOND CORPORATION
3324 Madison St., Greene, N.Y.
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RAYMOND®
Lightweight Hand Pallet Truck

Frees power trucks for stacking and continuous operation. Invaluable for intermittent handling on docks, trucks, elevators, etc. Easy rolling, operates in tight spots. Completely hydraulic. Built for years of use and abuse.

Capacity:
2,000 and 3,000 lbs.
Send for bulletin.

The RAYMOND CORPORATION
3320 Madison St., Greene, N.Y.
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panies consider a system a luxury. But it's not.

Part of the problem may be the top man in a small plant. Perhaps he grew up in sales and hasn't the overall grasp of production and material handling. The supplier says: study your system. The top man replies:

I haven't the staff, or

I'm the only one qualified and I haven't the time, or

I can't afford it.

The solution: this top man should take the time to understand thoroughly his product and the phases it goes through. Then he will be more likely to find the justification for a system.

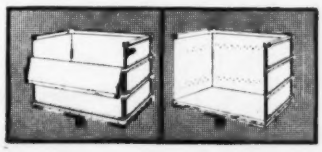
Another way to overcome resistance to systems is to make one man in a plant responsible for an overall look at material handling. He either must have the authority to make changes or he must have the ear of someone who has. (See Manager of Material Flow—Your Next Big Job? in MATERIAL HANDLING ENGINEERING, Dec. 1960).

To talk systems, the distributor says he must get to one man who really knows what's going on, such as the material handling engineer, plant engineer, production manager, or works superintendent.

Says a MH manufacturer, there's a tremendous amount of work to get companies to think systems. There are unlimited possibilities, and progress is just beginning to show. Material handling is leaving its nuts and bolts era. Simple movement (transfer from point A to B) is the furthest developed MH technique at the moment. But MH men are learning there's more to the field: accumulation, refined control, and others. ♦

VULCANIZED FIBRE
BOX TRUCKS

Drop Side and Open Side Models "Custom-Built" to suit your needs



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LIGHT • STRONG • MANEUVERABLE

ANY STYLE • ANY SIZE • Reinforced with heavy steel, rust proof rails and ribs. Inside completely snag- proof. Hardwood floors. Self-lubricating, easy rolling casters.

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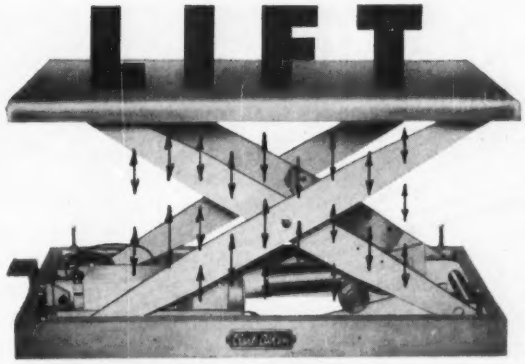
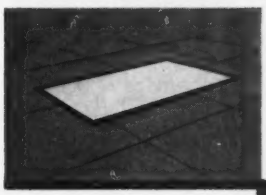
EASY WAY TO GET A LIFT



FOR LOADS UP TO 6000 LBS.—IN MATERIALS HANDLING SYSTEMS OR FOR CONVENIENT PORTABLE USE

Standard sizes afford a wide selection of heights that readily adapt them to changing requirements—from floor level to a height of 48" and will lift up to 6000 lbs. depending on the unit. Control is fast and sure for any height positioning and with electronic accessories automatic positioning is available. Special cradle tops are available for handling paper rolls and other cylindrical materials.

Clark-Aiken STANDARD LIFT TABLES

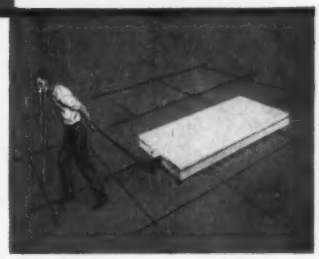


FLOOR LEVEL INSTALLATIONS WITH SAFETY TOE GUARD

Tables may be flush floor mounted with disappearing toe guards for safe operation.

EASY TO MOVE FOR PORTABLE USE

Portable unit is wheel mounted; makes easy mobility around the shop for your requirements.



Send today for informative bulletin. Tell us your requirements and we will recommend table size.

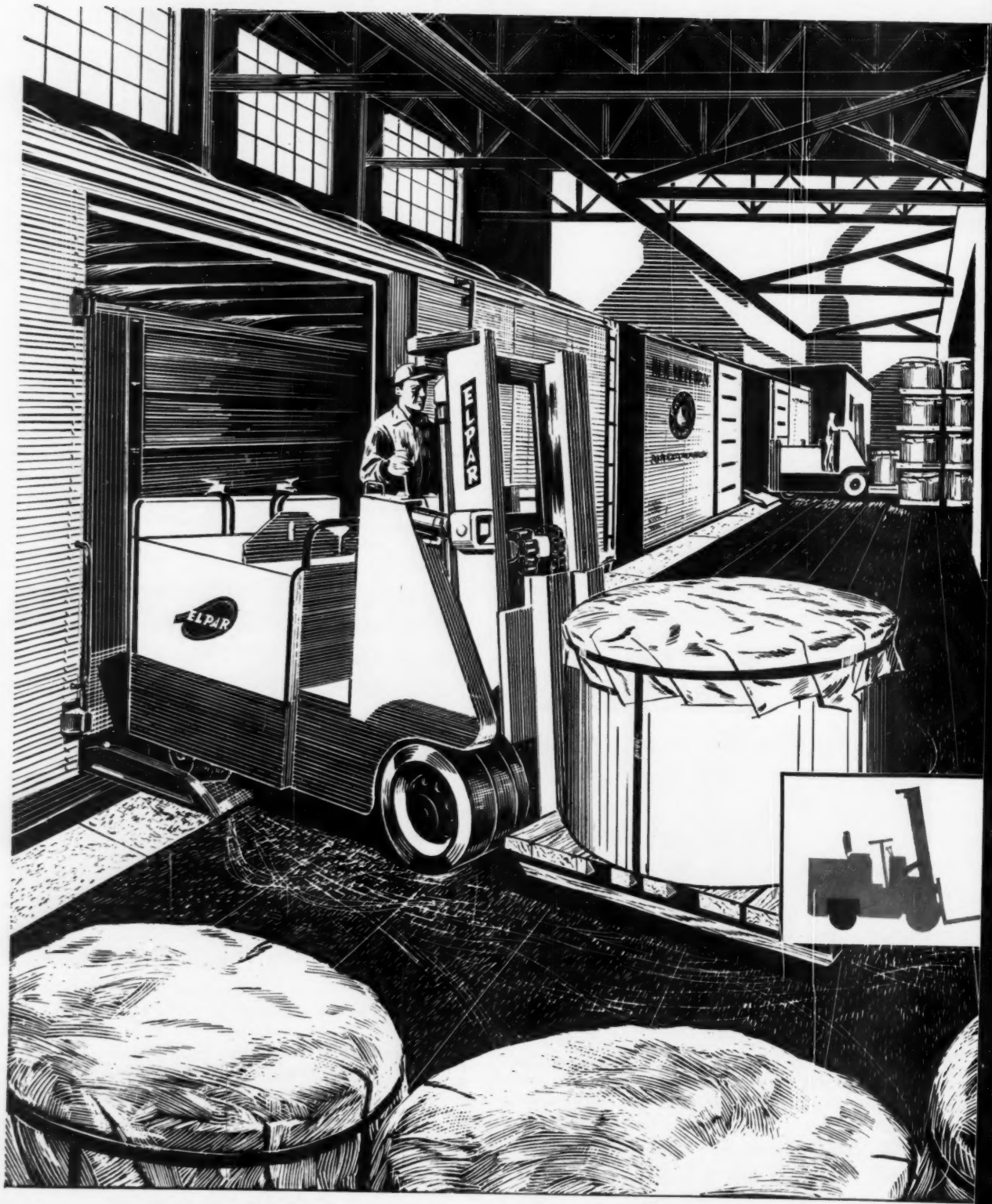
THE Clark-Aiken COMPANY
105 HART ST. LEE, MASSACHUSETTS

Canadian Representative: Gordon W. Keates
133 Flora Drive, Scarborough, Ontario

Circle 18 on Reader Service Card

ELPAR®

...engineered to



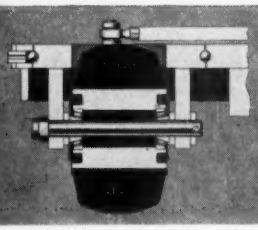
SAVE on operating costs

Elpar trucks are dependable... with a reputation for taking "truck killing" jobs in stride. They're efficient, with just a little more of what it takes to handle more loads per hour—at far less cost per load.

Behind this reputation for endurance and economy lies a challenging goal: building a line of industrial trucks that satisfy the needs of those companies seriously committed to a policy of reduced operating costs.

Match this advanced design with the trucks you've accepted up to now...

Typical of all ELPAR components is this new plate type fork truck steering axle. Remarkably strong, it provides an 80° angle of wheel turn. Steering geometry is perfect. And, because it's low and compact, battery compartment height can be increased. Steering is completely irreversible to reduce shock on the steering linkage.



Let's take a closer look. Caster forks are supported by 180 balls in replaceable races. Wheels are straddle mounted to eliminate cantilever loads. The complete assembly is center-mounted on bearings to assure free compensating motion.

For more information on Elpar Trucks write for this booklet—"Building A Quality Product"

ELPAR®

ELECTRIC TRUCKS

The Elwell-Parker Electric Company

4231 ST. CLAIR AVENUE • CLEVELAND 3, OHIO

In Canada: International Equipment Company, Ltd.

TWICE THE LIFE...ONE THIRD THE OPERATING COST

Circle **108** on Reader Service Card

BULLETINS CATALOGS FILMS

Loader Line

The Case W-12 loader is featured in a 16-page catalog. Fact finder index gives quick reference to outstanding features. Catalog shows other loader models in the line and describes optional equipment.

J. I. Case Co.

Circle **400** on Reader Service Card

Casters and Wheels

Catalog of its complete line of industrial casters and wheels is offered by this company. It's accompanied by a 4-page condensation that illustrates and describes each model and series.

Divine Brothers Co.

Circle **401** on Reader Service Card

Industrial Truck Battery Chargers

Six-page bulletin describes the complete line of AutoReg chargers for 12-, 15-, 16-, and 18-cell industrial truck batteries. Bulletin AR-109 also describes in detail the constant potential automatically regulated circuit, shows charging characteristics, gives complete electrical and mechanical details.

C & D Batteries

Circle **402** on Reader Service Card

Synthetic Web Belt Slings

Booklet describes Safety-Weave synthetic web belt slings. Gives useful information about nylon and Dacron slings. Includes data showing resistance to common chemicals. Charts of dimensions and capacities of synthetic slings in vertical, choker, and basket applications.

Wire Rope Division
Jones & Laughlin Steel Corp.

Circle **403** on Reader Service Card

Steel Shipping Containers

Transportainers are all-welded steel, described in Bulletin 249. Dimensions, illustrations, and information useful to shipper and carrier. Capacity: 279.5 cubic feet, or 12,000 lb.

Dravo Corp.

Circle **404** on Reader Service Card

Vibration Test Reference Manual

Guide for packaging engineers now using vibration test equipment in their laboratories. The manual gives actual types and sizes of containers, test methods, machine frequencies and results of over 50 products. They range from a few ounces to 2,000 lb.

Gaynes Engineering Co.

Circle **405** on Reader Service Card

One-Battery Electric Car

Literature describes the Birdie electric car. Tells advantages of using them in factories, warehouses, lumber yards, refineries, etc. Car weighs only 181 lb., is only 35 inches wide, and travels 10 miles on a single charge. Carries one man and 100 lb. of cargo.

Birdie Co., Inc.

Circle **406** on Reader Service Card

"Meeting the Productivity Challenge"

How to get the most from industrial and human resources is an urgent problem today. World markets are increasingly competitive. Labor costs are rising. The Soviet Union has launched a trade offensive. Management MUST meet the productivity challenge quickly and effectively.

This report analyzes the idea of productivity. Leading executives discuss its measurement, the causes and consequences of anti-productivity, and the effects of current labor relations practices.

Specialists show how effective political action, organization planning, employee motivation, and college-industry cooperation can help meet this challenge.

Management Report #42, 102 pages, American Management Association, 1515 Broadway, New York 36, N.Y. $3. AMA members, $2.

Liquid Filling Machine

Bulletin LF-60 describes an automatic liquid filling machine. It forms, fills, and seals pouch-type containers. Tells how there are no electronic or complicated parts, and describes the complete operation.

Speedway Machine & Tool Co., Inc.

Circle **407** on Reader Service Card

Automatic Hopper Scale

Bulletin 0459 describes this automatic bulk weighing system for weighing sugar and other bulk materials. Scales usually come in sizes to handle from 100 to 600 tons an hour under continuous operation.

Richardson Scale Co.

Circle **408** on Reader Service Card

Conversion Factor Wall Chart

A handy table for engineers and shop men. Includes common conversions such as inches to centimeters, watts to horsepower. Also has many unusual converions that are difficult to find in handbooks. Examples: quintal to lb., cu. ft. to liters, microns to meters, etc.

Precision Equipment Co.

Circle **409** on Reader Service Card

Truck Leveler

Learn how you can increase efficiency and safety at your loading dock. Literature describes the Rotary truck leveler. It raises or lowers a trailer to dock level for fast loading and unloading. Includes a blue print, full specifications, and layout.

Rotary Lift Co.

Circle **410** on Reader Service Card

Continued on page 81

READER SERVICE CARD — MATERIAL HANDLING ENGINEERING

MATERIAL HANDLING ENGINEERING

JANUARY 1961,

Circle item numbers for additional information about products described and advertised in this issue.

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COST CUTTING IDEAS

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PRODUCT NEWS

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MATERIAL HANDLING ENGINEERING

January 1961

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12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240

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252	259	266
253	260	267
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PRODUCT NEWS

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MATERIAL HANDLING ENGINEERING

January 1961.

Circle item numbers for additional information about products described and advertised in this issue.

ADVERTISERS

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Card Invalid Without Company Name — Type or Print

NAME _____

TITLE _____

COMPANY _____

KIND OF BUSINESS _____

ADDRESS _____

CITY _____ ZONE _____

STATE _____

DO NOT USE THIS CARD AFTER Mar. 15, 1961

COST CUTTING IDEAS

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PRODUCT NEWS

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408	417	426	435	444	453	462	471	480	489	498

FIRST CLASS
PERMIT No. 8066
CLEVELAND, OHIO

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN UNITED STATES

POSTAGE WILL BE PAID BY:

MATERIAL HANDLING ENGINEERING

812 Huron Road
Cleveland 15, Ohio

FIRST CLASS
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READER SERVICE CARD — MATERIAL HANDLING ENGINEERING

BULLETINS CATALOGS FILMS

Tachometer Catalog

Catalog 62 will interest anyone who has to measure speed, control production, or quality. Photographs, drawings, and descriptions of 19 tachometers. Drawings of flexible shafts and drives.

Jones Motrola Corp.

Circle **411** on Reader Service Card

Gastight Screw Conveyors

Bulletin 83-A describes standard and industrial gastight screw conveyors. Specifications for continuous-section flight screw convevor, and details conveyor boxes and covers, and screw convevor hangers.

Sprout, Waldron & Co., Inc.

Circle **412** on Reader Service Card

Heavy-duty Towing Tractors

Bulletin SS-1286 describes towing tractors of 22,500 and 30,000 lb. drawbar pull. Details and specifications on the Clarktor 225 and 300. Designed to tow large jet aircraft, but fine for any extremely heavy load. Performance profile chart based on grades, speeds and drawbar pull, along with specifications of engine, transmission, electric system, instruments, brakes, and steering arrangement.

Industrial Truck Division
Clark Equipment Co.

Circle **413** on Reader Service Card

Two-Wheel Hand Trucks

Bulletin 290 describes new line. Conventional models for all box, carton and package handling are made in 400-to 1,000-lb. capacities. Literature gives full specifications and full information on special application trucks.

Harper Trucks, Inc.

Circle **414** on Reader Service Card

Offer 10-Second Test Kit

Data sheet describes Super-Strength steel storage racks with positive locking. A test kit demonstrates how they save money and space. Racks are adjustable in 2-inch steps. Have many uses.

Aacon Unitary Storage Equipment Co.

Circle **415** on Reader Service Card

Loading Time Cut 80%

Job Study No. 196 tells how new shipping facilities combined with Towmotor mass-handling methods reduced loading time 80 percent at the Anheuser-Busch Inc., St. Louis, Mo. plant. A 25-unit fleet moves up to 10,000 cartons an hour.

Towmotor Corp.

Circle **416** on Reader Service Card

High Stack Walkie

Circular 34-K describes a high-stacking, 2,000-lb. capacity walkie with a bulit-in charger. Explains the traction drive unit and built-in charger. Includes full specifications. For transporting, stacking, loading, and unloading in plants, warehouses, and stores.

Lewis-Shepard Products, Inc.

Circle **417** on Reader Service Card

"The Fluff That Couldn't Be Baled—But Was"

A 4-page, illustrated pamphlet, describes the American hydraulic baler. Company says it makes a bale of any compressible material that is 60 percent denser than ordinary bales.

The American Baler Co.

Circle **418** on Reader Service Card

"Proper Truck Selection"

Fifth of a series of technical brochures published by Automatic. They give the material handling engineer a ready reference to everyday handling problems. Cases show how the wrong trucks hampered output and increased costs. Text and photos show the importance of truck selection and how to do it right.

Automatic Transportation Co.

Circle **419** on Reader Service Card

Air-Weigh Systems

Illustrated 4-page pamphlet describes Weber air-weigh systems. Used for weighing, inventory control, mixing and batching, and solids flow control. Schematic drawings.

Harrob Industries

Circle **420** on Reader Service Card

Self-loading Vertical Conveyor

How is the Escaveyor different? Where do you use it? How does it save time, space, money? How can complete systems be developed from it? Bulletin 125 answers these questions about the self-loading, continuous vertical convevor, called the Escaveyor. Pictures show it in use in plants, and a simplified drawing indicates what it can do. Schematic diagrams suggest some of the conveyor systems that can be made for horizontal and vertical continuous flow.

Standard Conveyor Co.

Circle **421** on Reader Service Card

Stencil Ink In 9 Colors

Bulletin 601 describes their instant drying, waterproof ink. Fine for stenciling corrugated cartons or any metal, paper, concrete, fiber, fabric. Bulletin covers prices and quantity discounts.

Reynolds Ink, Inc.

Circle **422** on Reader Service Card

Tubular Conveyor

Catalog shows six different industrial applications of the Hapman tubular conveyor. Conveyor capacity chart gives ways to determine conveyor system requirements. Cut-away view of the sealed-pin details construction features.

Conveyor Division
Hapman Corp.

Circle **423** on Reader Service Card

Locker Styles

Catalog 6000, 24-pages, illustrates and describes nine styles of lockers for industry, offices, stores, and clubs. Complete dimensions for each style. Covers design and construction. A planning section will help you plan an economical locker layout.

Penco Division
Alan Wood Steel Co.

Circle **424** on Reader Service Card

Mobile Hydraulic Cranes

Complete line of Ruger multipurpose mobile hydraulic cranes is described in Bulletin 3000. On-the-job pictures show general and special applications. Bulletin includes descriptions of accessories, such as electric power packs, extension booms, barrel grips, crane wells, stack or lift attachments, stabilizers.

Ruger Equipment, Inc.

Circle **425** on Reader Service Card

Bakery Handling Receptacles

Fast, economical baked-goods handling with Bakerbov vulcanized fibre receptacles is described in a 6-page bulletin. Boxes for in-plant, out-plant, wholesale, and door-to-door handling are included. They're made of vulcanized fibre, feature strength, resiliency, light weight, and durability.

National Vulcanized Fibre Co.

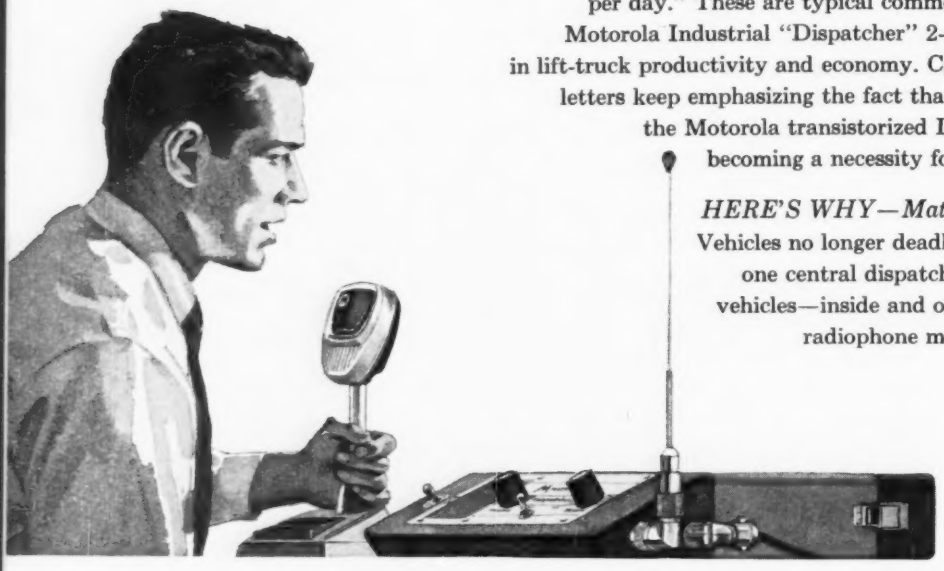
Circle **426** on Reader Service Card

Continued on page 82

Circle 62 on Reader Service Card

SAVE TIME SAVE MONEY

2-way radio... indispensable tool for increasing the efficiency of materials handling operations



HERE'S PROOF—"Almost 100% truck efficiency" ... "3 now do the work of 5" ... "2 hours more production per truck, per day." These are typical comments from companies where the new Motorola Industrial "Dispatcher" 2-way radio is turning in new records in lift-truck productivity and economy. Careful surveys as well as unsolicited letters keep emphasizing the fact that, in the field of materials handling, the Motorola transistorized Industrial "Dispatcher" radio is fast becoming a necessity for firms who must stay competitive.

HERE'S WHY—Materials now move according to plan. Vehicles no longer deadhead and backtrack. Motorola links one central dispatcher with all your materials handling vehicles—inside and outside. The Motorola "Dispatcher" radiophone mounts easily on any vehicle; it's the

BULLETINS CATALOGS FILMS

Metal Processing Job Study

Job Study No. 194 tells how to handle a greatly expanded output of steel. Shipping steel plate is simplified. Towmotor mass-handling speeds steel production from receiving through shipping. Fork lifts with ram accessories are important in the work.

Towmotor Corp.

Circle **427** on Reader Service Card

Container Handling Fork Trucks

Six-page booklet describes five heavy duty fork lift trucks. Gas powered, pneumatic tired Vanloader trucks handle van-sized shipping containers. Capacity range: 14,500 to 45,000 lb. at 48-in. load centers. Drawings and text outline dimensions and operating advantages. Sketches of standard torque converter, planetary drive axle, and power shift transmission used in each model.

Industrial Truck Div., Clark Equipment Co.

Circle **428** on Reader Service Card

Strapping Tools and Supplies

Sixty-page thumb-indexed catalog on automatic strapping machines, manually-operated strapping tools, strapping, seals, and accessories. Strapping recommendations for light-, medium-, and heavyweight packages, cartons, bundles, boxes and crates. Describes and illustrates equipment needed to apply flat, oval and round steel strapping as well as rayon strap and pressure sensitive tape.

A. J. Gerrard & Co.

Circle **429** on Reader Service Card

Cost-saving Strength

Ply-Veneer (paper overlaid veneer) panels have a high strength-weight ratio. Compact, easy to handle, they reduce tare weight without cutting protection. Also good for container parts, and for luggage, displays, furniture, and toys. Literature describes the use of the product in all fields. Gives 14 different constructions. Charts show results of drop puncture test, stiffness test, nail edge shear test, and transverse bending test. Tells how this material can work for you.

Silvatek Div., Weyerhaeuser Co.

Circle **430** on Reader Service Card

"Better Ways to Package, Unitize, and Ship"

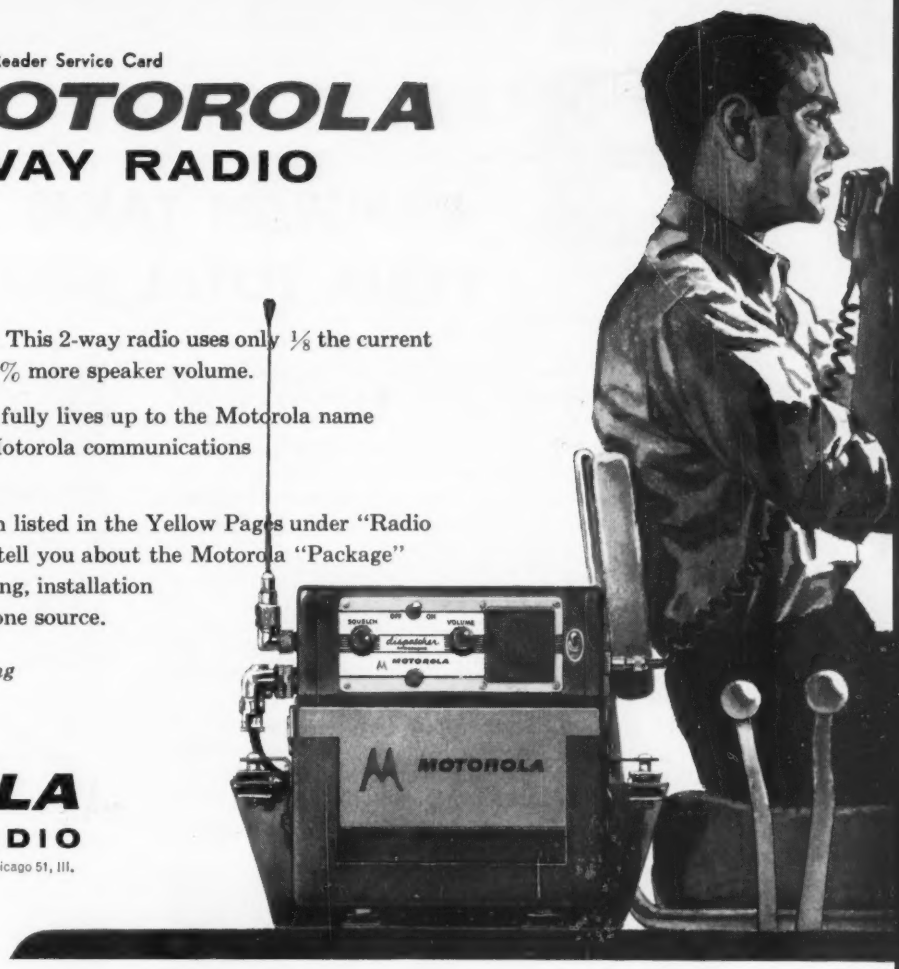
Pocket-size, 40-page booklet. A reference guide to Signode strapping methods and tools. New material includes description of compression strapping and jib crane systems. Twelve strapping pointers guide shippers to good results at less cost. Shippers will find helpful charts of available material and equipment. One chart lists 39 different sealers, with sizes, weights, and descriptions of their action.

Signode Steel Strapping Co.

Circle **431** on Reader Service Card

Circle 62 on Reader Service Card

WITH MOTOROLA 2-WAY RADIO



smallest industrial radio available today. This 2-way radio uses only 1/8 the current required by other radios, yet delivers 50% more speaker volume.

The Motorola "Dispatcher" radiophone fully lives up to the Motorola name for dependability. Industry uses more Motorola communications systems than all makes combined.

Call your Motorola man. You'll find him listed in the Yellow Pages under "Radio Communications Equipment." Let him tell you about the Motorola "Package" —how your systems engineering, financing, installation and maintenance, can be handled from one source.

Write today for your free Materials Handling 2-Way Radio Fact Kit.

"Dispatcher" is a trademark of Motorola Inc.

MOTOROLA 2-WAY RADIO

Motorola Communications & Electronics, Inc., 4501 Augusta Blvd., Chicago 51, Ill.
A Subsidiary of Motorola Inc. SPaulding 2-6500

Electrical Distribution Systems

Bulletin 80, 32 pages, shows the company's heavy duty trolley busway electrical distribution system. Describes 225-, 375-, and 500-ampere systems for electrification of heavy duty cranes and hoists, machine tools, conveyor assembly lines. There are special sections on installation planning and procedure, methods of mounting, and typical installations.

Feedrail Corp.

Circle **432** on Reader Service Card

Electric Motor Idea Book

A 14-page booklet and condensed catalog. Filled with useful data for designing, selecting, and specifying. Of particular interest to original equipment manufacturers who require special motor designs. Gives important construction, dimension, and price data on the Doerr line of fractional and integral horsepower motors. Describes many motor modifications available.

Doerr Electric Corp.

Circle **433** on Reader Service Card

Adjustable Storage Rack

This booklet actually demonstrates the simplicity of the Series "75" adjustable storage rack's 2-part upright frame and shelf beam assembly. The outer fold of the booklet becomes the shelf beam, locks into a reproduction of an upright frame on the inner fold. Illustrates versatility. Graph shows shelf beam loads in load pounds and span inches. This is keyed to a table of part numbers and weights per pair of shelf beam types, with horizontal clearances. Complete table on upright frames, with overall heights and depths.

Palmer-Shile Co.

Circle **434** on Reader Service Card

Modular Production Assembly System

Flo-Line systems and modular components described and illustrated in Folder FL-860. Components may be rearranged, removed, or added as needed. System offers a variety of clip-on shelves, work holders, and tool holders.

Flotron Industries, Inc.

Circle **435** on Reader Service Card

Leasing Plan for Shelving

Booklet 2691 describes a new plan for leasing this company's products, everything from office furniture to steel shelving, work benches, and varied shop equipment. Terms to suit a wide variety of customers. Lease runs from 3 to 10 years. Choice of renewal or outright purchase at the end of the lease. Lease renewal for 3 to 10 years at 20 percent of the price.

Columbia-Hallowell Div., Standard Pressed Steel Co.

Circle **436** on Reader Service Card

Modular Benches Featured

Catalog shows line of benches, bins, cabinets, shelving, stock carts, and special accessory equipment. Featured are modular benches with choice of widths. All handles and hardware are recessed or flush, no projections.

Bay Products, Inc.

Circle **437** on Reader Service Card

Continued on page 86

RAPISTAN HANDLING Ideas

RAPISTAN TAKES A "WIDE-ANGLE" YOUR TOTAL ACCUMULATION AND

Have you counted your warehouses lately? Not to inventory the items in them — but to identify them, wherever they may be found in your operations?

Counting warehouses is not as far-fetched as it may sound. Although most businesses readily recognize two or three warehousing areas — shipping, receiving and central storage areas, for example — this is only part of the story.

When the flow of materials through any plant is analyzed, build-ups of work are frequently found before and after many operations. Regardless of the volume of material involved, these constitute real warehousing problems that may be costing you more than you realize.

By streamlining and simplifying the operation of your major and "hidden" warehouses, you can gain better utilization of space and control of inventory, assure first-in-first-out use of materials, cut down on spoilage and damage costs, and cut out much lost time and wasted motion.

This method of parts storage is typical of many manufacturing plants. All the parts needed at this part of the line are here, if the workers can find them. Rapistan warehousing principles treat such build-ups of material as true warehousing problems.

(Below) Optimum quantities of all parts needed at the same assembly station now are stored in Live Storage Flow Racks, loaded from service aisles. No time is lost in walking and searching — no interruptions for delivery of supplies.

This central storage area (above) is typical of many industrial plants. Stacked bins and boxes defy efficient handling. Wide aisles required by lift trucks waste additional floor space. Rapistan warehousing principles (below) reduced the floor space of this central storage area by 4,500 sq. ft. and added 10,000 more sq. ft. of storage capacity. Parts now stored in Rapistan Flow Rack are instantly accessible; inventory control is simplified, and FIFO use of stock is automatically enforced. Space is used to the full cube capacity.

CONSIDER TIME ELEMENT, TOO

Goods need not remain at rest for days or weeks to constitute a true warehousing situation. In modern concepts of efficient handling, where accumulation must be closely coordinated with other functions of the flow system, warehousing problems can result from materials being stopped or stored for as little as a few minutes. In fact, since such short-term stop-overs usually involve frequent rehandling, rapid turnover can be more costly than long-term storage would be.

MAKE MATERIALS "CONVEYABLE"

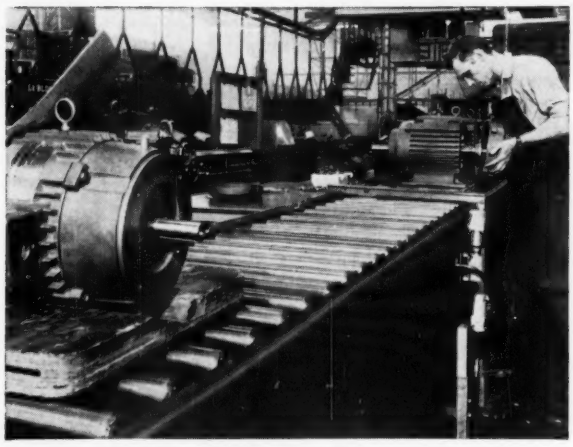
The "condition" of the materials to be handled also has a relationship to your accumulation problems. In many situations, the key to gaining the advan-

VIEW TO SOLVE MOVEMENT PROBLEMS

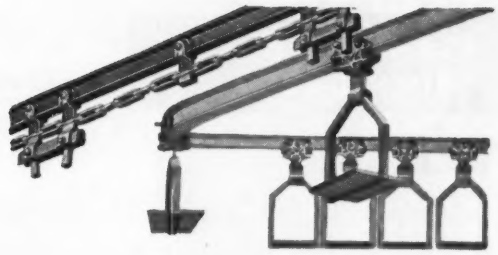
tages of live storage for "problem" parts is to place them in a "conveyable" condition.

If you've rejected the application of advanced warehousing principles to the storage of certain items because of their size, shape, weight or handling requirements, you may be denying yourself cost savings that could be yours. Simple, low-cost standardized containers may allow you to store such materials on wheels or rollers, where they belong, for reduced handling and easy accessibility. Low-cost pallets, tote boxes, and trays or simple carriers for overhead trolley conveyor, often can serve as suitable containers for even the most unwieldy objects.

Your Rapistan engineer is trained to look beyond the obvious, recognize accumulation problems wherever or whenever they exist. He will recommend practical solutions that promise profits in lower-cost, more efficient handling methods. If you'd like to see some examples of how Rapistan's modern warehousing techniques and coordinated handling systems have paid off for others — manufacturers, wholesalers, retailers and service industries—send for this "Handbook of Materials Handling Ideas." Circle No. 10 on the Reader Service Card.



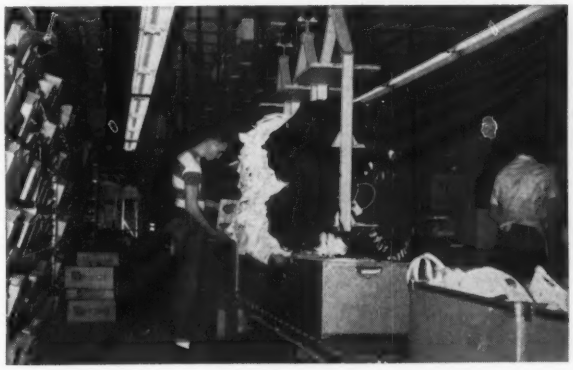
Heavy generator parts in this plant are "warehoused" for short times at several points in the progressive assembly operations. Low-cost wooden pallets serve as standardized containers for these otherwise "non-conveyable" objects.



POWER and FREE is a complete and versatile overhead flow system

Rapistan Power-and-Free conveyor systems give you full-time control of materials in motion on overhead conveyor. You can automatically direct the flow of goods or parts to work stations, accumulation points, into temporary or long-term storage — and recall loads selectively whenever and wherever needed for most efficient materials flow.

Overhead Power-and-Free conveyor can be integrated into an existing or new floor-mounted conveyor system, as in this garment manufacturing plant. This is a transfer area, where materials are unloaded from the overhead "free" line to containers on the floor conveyor.

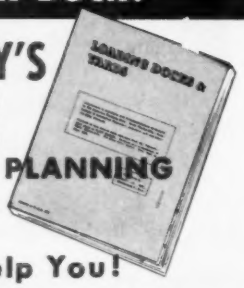


Even when different time cycles are involved for individual processing operations, Rapistan Power-and-Free lets you coordinate and control the entire flow pattern for maximum efficiency. Many manual handling operations can be eliminated or made more efficient, by a simple, trouble-free Rapistan Power-and-Free overhead conveyor system.

For information on Rapistan Power-and-Free Conveyor in industrial processing and warehousing applications, write for this new illustrated brochure.
Circle No. 11 on the Reader Service Card.

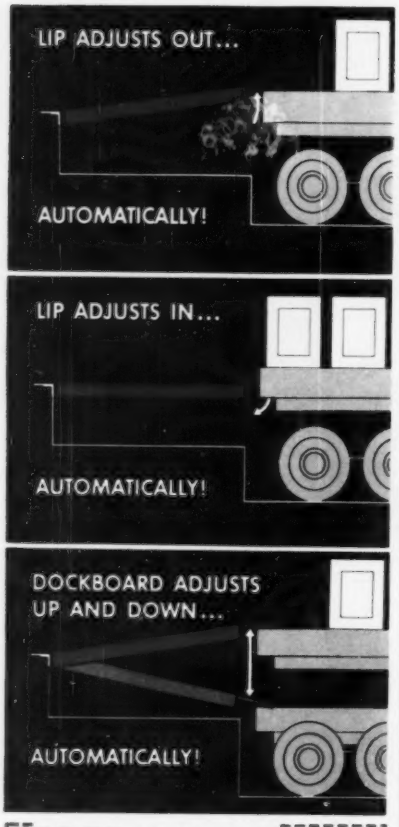
Rapistan®
CONVEYING EQUIPMENT
The RAPIDS-STANDARD COMPANY, Inc.
500 Rapistan Building, Grand Rapids 2, Michigan

PLANNING A NEW TRUCK DOCK?



KELLEY'S FREE DOCK PLANNING KIT Can Help You!

Whether you're at the blueprint or "just thinking" stage, you need Kelley's brand new reference booklet on loading dock layout. It provides important data on driveway, aisle, canopy and door requirements, dock heights, current truck-trailer dimension restrictions, etc. Also, includes complete specs on industry's No. 1 Adjustable Dockboard—Kelley's ADJUST-A-LIP. Make yours a modern, efficient and safe dock operation. Act now! Mail coupon today!



FREE Get the FACTS! Send for details TODAY!

☐ FREE KIT — "How to Plan a Profitable Truck Dock Operation." Get Booklets on Dock Safety, Modernizing, Levelation Data, Dock Designs, etc.

☐ FREE SURVEY — No obligation.

Tear out and attach this coupon to your letterhead. Sign your name and mail to:

HI-LO Adjustable DOCKBOARDS

KELLEY COMPANY INC.

2139 W. MILL ROAD
MILWAUKEE 9, WISCONSIN

Circle 48 on Reader Service Card

BULLETINS CATALOGS FILMS

Interfloor Belt Conveyors

Bulletin 400 describes permanent inclined belt conveyors. Photographs and sketches of typical installations of efficient interfloor handling show how to use these conveyors to get more out of mezzanine and balcony space. Photographs and specifications cover general duty and heavy duty permanent inclined belt conveyors. Specifications include standard lengths, widths, bed types, and belt speeds.

The Rapids-Standard Co., Inc.

Circle **438** on Reader Service Card

Storage Rack Systems

Storage rack systems made with BG Ridgrak have only two basic parts. The upright frames and stringers are factory welded in jigs, ready to be erected on the job without bolts, nuts, screws, or tools. Bulletin 107 tells you how to select the correct system, and describes accessories.

Bernard Gloekler North East

Circle **439** on Reader Service Card

Rotary Table Feeders

Bulletin 6093, 8 pages, describes standard Rex Rotary table feeders. They will feed and control sand, crushed ore, wood chips, and similar bulk materials. Literature contains drawings, dimensions, and specifications of the three standard models. Easy-to-read selection procedures will aid you in selecting the right model to meet your needs.

Chain Belt Co.

Circle **440** on Reader Service Card

Check Weighing Systems

Bulletin 50 covers the systems you can assemble from a variety of platform scales, indicators, and controls. Systems may be manual or automatic. Photographs of components, and block diagrams of typical systems.

Weighing & Controls, Inc.

Circle **441** on Reader Service Card

Circular Chain Data

Bulletin 8 describes Circular chain, made for curves. Its commonest use is to transfer goods from one straight-line convevor to another. Literature gives details and engineering data.

Acme Chain Corp.

Circle **442** on Reader Service Card

MECO

engineered bucket elevators

more "up" time

Nobody likes to repair an elevator. That's why many plants choose MECO to engineer a bucket elevator for the precise job . . . trouble is designed out before the equipment goes in, to keep your plant productive. Let's face it: the bucket elevator for clay, shale, or aggregate is not the best one for certain chemicals and plastics. MECO knows the difference — and designs to keep the maintenance man away.

MECO engineers and manufactures a complete range of chain and belt types of elevators: vertically inclined, continuous bucket, and centrifugal discharge. Heavy duty steel head pulley is carefully balanced: slatted tail pulley cleans itself. Compact torque arm drive is sized for maximum efficiency. You get surprisingly fast delivery. Please write The Manufacturers Equipment Company, 218 Madeira Ave., Dayton 4, Ohio. Request Bulletin BE-1.

MECO

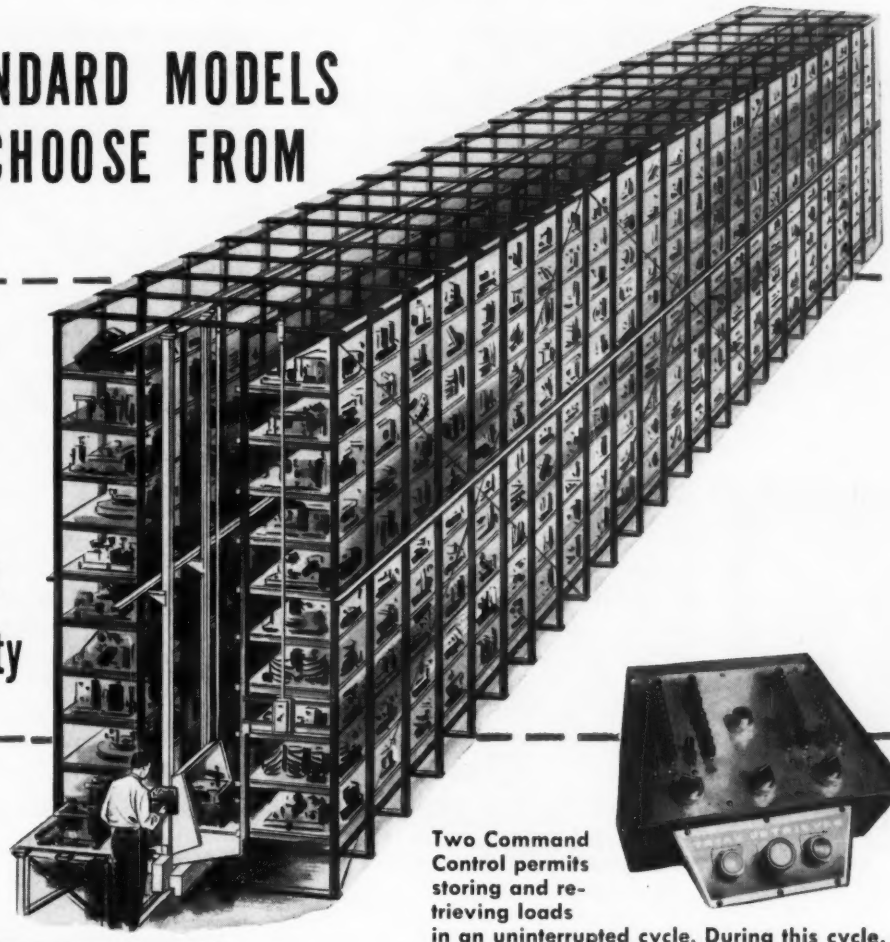
ENGINEERED CLAYWORKING AND HANDLING EQUIPMENT

Circle **55** on Reader Service Card

PUSH KEY MATERIAL HANDLING AND STORAGE with the TRIAX® RETRIEVER®

19 STANDARD MODELS TO CHOOSE FROM

Pre-engineered Modules... from 12'–24' height 1000 lb. capacity



Two Command Control permits storing and retrieving loads in an uninterrupted cycle. During this cycle, the operator is free to perform other duties.

LOAD DIMENSION PARALLEL TO AISLE						
		18″	24″	30″	36″	42″
PERPENDICULAR DIMENSIONS	24″	R34	R44			
	30″	R35	R45	R55		
	36″	R36	R46	R56	R66	
	42″	R37	R47	R57	R67	R77
	48″	R38	R48	R58	R68	R78

Other units are available up to 2500 lb. capacity. For further information write or call . . .

RANDOM STORAGE . . . PINPOINT LOCATION

Floor-to-ceiling storage with a Triax Retriever can save up to 70% plant area or labor . . . and offers immediate access to parts, tools, dies or inventory in storage.

The R-46 illustrated contains 460 openings with a total of 2760 square feet of storage space. It occupies only 550 square feet of floor space. Load height is 13″ including a 1″ slab pallet, but can be varied to meet your needs.

Triax now offers a wide range of R-Series Retrievers to fit your individual requirements.

THE TRIAX COMPANY

SWeetbriar 1-9800

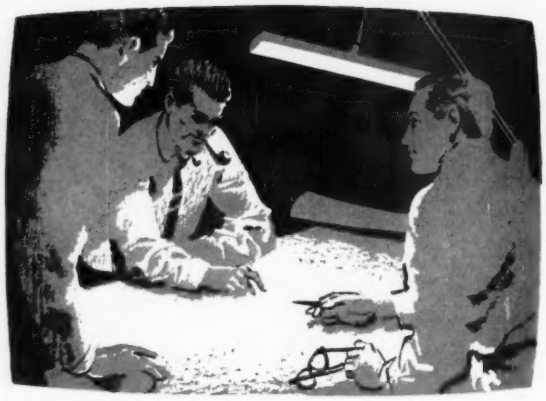
11955 SHAKER BLVD. • CLEVELAND 20, OHIO

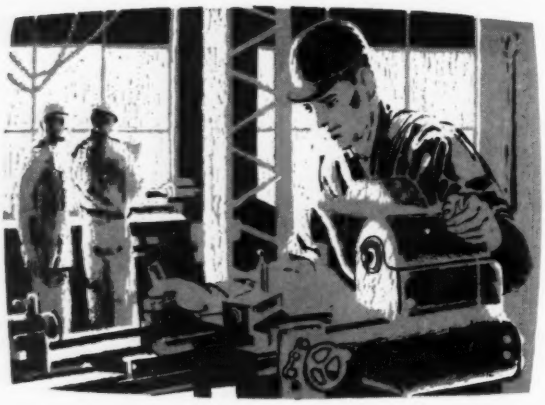
Circle 89 on Reader Service Card

Your local Moline Chain OFFERS MORE

His engineering staff is capable of helping solve power transmission problems.

Your Moline distributor knows the power transmission business from A to Z, usually has the right answer at his fingertips because his engineering staff has the technical know-how to solve any problem. When you call your Moline man, you know you're talking to an expert and you can rely on his advice and knowledge.



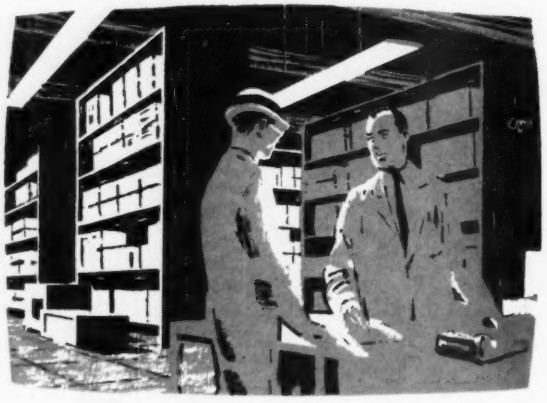


He offers experienced technical help to give you special service.

Most Moline distributors have been in business for many years and have an array of qualified technical men—machinists, gear cutters, installation crews and maintenance men—to help you with special service when you need it.

He maintains a diversified stock of power transmission equipment.

You'll save precious time when you call on your local Moline distributor for power transmission equipment. You don't have to shop around because he normally carries in stock components of every description. His inventory includes bearings, reducers, clutches, couplings, pulleys, takeups . . . virtually any item needed for efficient power transmission.



Find Us Fast In The 'Yellow Pages'

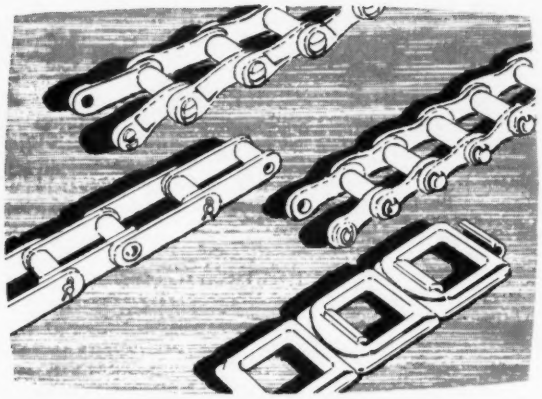
Moline Chains

Leaders for 60 years

for conveying, elevating and power transmission

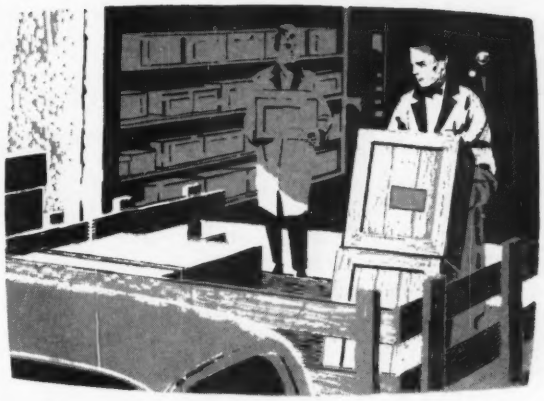
MOLINE MALLEABLE IRON CO., St. Charles, Illinois

Distributor than "order taker" service...



He carries a large stock of Moline chains, sprockets and buckets.

Your Moline distributor can supply you immediately with chain, sprockets, buckets, sheaves and attachments for any industrial conveyor, elevating or power transmission application. He is always available for help when you need "specials" in malleable chain and attachments because Moline has long been a prime source for OEMs when special chain is required.



He stands ready to give you immediate delivery from stock.

You can rely on fast service when you call your Moline distributor. Tremendous inventories on hand (many distributors stock up to 7,000 power transmission and conveying items) enable him to fill orders and have them on their way within 24 hours. So depend upon your Moline distributor for all your power transmission and conveying supplies and be sure of conscientious service and quality products.

Call your local Moline Chain Distributor today!

ALABAMA, Montgomery, Alabama Bearings Co., Standard Elect. Mach. Co.; Mobile, Bearing & Trans. Sup., Turner Sup. Co.; Decatur, H & H Sup. Co.; Birmingham, Industrial Sup., Inc.; Sheffield, Martin Sup. Co.; Brewton, Pensacola Mill Sup. Co.

ALASKA, Ketchikan, Northern Mach. Works, White Motor Co.; Sitka, Sitka Engine & Equip. Co.; Wrangell, Wrangell Mach. Works.

ARIZONA, Flagstaff, Arizona Sup. Co.; Phoenix, Seamon Bearing Co.; Tucson, Seamon Bearing Co.

ARKANSAS, Little Rock, Allied Arkansas Bearing Co., Mill & Mine Sup. Co.; El Dorado, American Sup. Co.; Pine Bluff, Arkansas Mill Sup. Co.; Fort Smith, Boal Fdry. & Mach. Co.; West Helena, A. S. Kelly Co.

CALIFORNIA, LOS ANGELES, J. W. MINDER CHAIN & GEAR CO.; SAN FRANCISCO, CHARLES A. FOWLER CO.; Fresno, Gordon Equip. Co., George M. Philpott Co.; North Sacramento, Fred E. Barnett Co.; Stockton, Stockton Bearing Co.; Stockton Iron Works, Standard Iron Sup. Co.; Lynwood, Best Chain Co.; Crescent City, Crescent City Mach. Works; El Centro, W. H. Douthitt, San Leandro, Monarch Corp.; Hemet, Steve's Auto Parts; Arcata, Reliable Hardware.

COLORADO, Denver, Allen Bearings Sup., Power Trans. Inc.; Grand Junction, Bearings & Power Trans.

CONNECTICUT, Waterbury, Valley Mill Sup. Co.

DELAWARE, Wilmington, J. C. Bennington Co.; Georgetown, Hemco Dist. Co.

FLORIDA, Fort Pierce, Atlantic Equip. & Sup. Co.; Ocala, H. A. Busbee Co.; Jacksonville, J. G. Christopher Co., C. W. Farmer Co., Georgia Sup. Co., Parker, Helms & Langston, Inc.; Tampa, Ellis Edwin Sup. Co., Bert Lowe Sup. Co.; Mulberry, Florida Conveyor & Equip. Co.; Miami, Gondas Corp.; Winter Haven, Haven Mill Sup. Co., Inc.; Pensacola, Industrial Marine Sup. Co., Pensacola Mill Sup. Co.; Orlando, Mill Sup. Inc.; Lakeland, Miller Bearings, Mine & Mill Sup. Co.; Panama City, Panama Mach. & Sup. Co.

GEORGIA, ATLANTA, R. C. WATKINS ALLIED COMPANIES, INC., Industrial Service Co., Southern Belting & Trans.; Augusta, Augusta Mill Sup. Co., Richmond Sup. Co., Toole Sup. Co.; Dalton, Dalton Bearing Service; Macon, C. W. Farmer Co., Macon Sup. Co.; Savannah, Georgia Sup. Co.; Shellman, Jim Horne Mill Sup.; Brunswick, Parker, Helms & Langston, Inc.; Thomasville, E. J. Williamson, Inc.

HAWAII, Honolulu, P. S. Pell Co., Ltd.

IDAHO, Boise, Western Bearings, Inc., Yanke Mach. Shop & Sprocket Co., Inc.; Pocatello, Flaherty Sales Inc.; Wallace, Coeur D'Alenes Co.

ILLINOIS, CHICAGO, HOLMES & JOHNSON, INC., Chain Sales, Inc., Baran Gear & Trans., Pattyn Gear & Trans. Co., Power Trans. Eq., Republic Bearing & Trans.; Rockford, Berry Bearing Co.; Aurora, Foy Sup., Industrial Sup. Co.; Fairfield, Mid East Sup. & Mach. Co.; Carpentersville, Northern Illinois Sup. Co., Inc.; Woodstock, T. M. Schultz Co.; Streator, Streator Industrial Sup.; Peoria, Hagerty Bros.

INDIANA, Terre Haute, B. F. Crawford Co.; Goshen, Day Equip.

IOWA, Fort Dodge, Fort Dodge Mach. & Sup. Co.; Des Moines, Globe Mach. & Sup. Co.; Davenport, Globe Mach. & Sup. Co.; Spencer, Globe Mach. & Sup. Co.; Cedar Rapids, Globe Mach. & Sup. Co.; Sioux City, Standard Bearings Co.

KANSAS, Wichita, B.R.C. Bearing Co., Inc.; Coffeyville, Kansas Bearing Sup.

KENTUCKY, LOUISVILLE, FRED WENLE, Albert B. Crush & Co., Butler Sup. Trans. Co., Louisville Mill Sup. Co.; Hopkinsville, Cayce Mill Sup. Company.

LOUISIANA, Alexandria, American Sup. Co.; New Orleans, Atlantic Gulf Sup. Co., C. T. Patterson Co., Service Sup. & Engr. Co.; Lake Charles, Behrings Bearing Service of La.; West Monroe, Collossus Midland Belting & Sup.; Shreveport, Collossus Industries Inc., Midland Belting & Sup.; Baton Rouge, Louisiana Bearing Co.

MAINE, Bangor, Snow & Nealley.

MARYLAND, Baltimore, L. A. Benson Co.; Hagerstown, Hagerstown Equip. Co.

MASSACHUSETTS, QUINCY, UNION GEAR AND SPROCKET CORP.; Needham Heights, Babcock Equip. Co.; Cambridge, Bellamy-Robie, Inc., Olmsted & Flint Corp., Lewis E. Tracy Co.

MICHIGAN, BIRMINGHAM, GEORGE E. SINKO; Adrian, Beal Sup. Co.; Saginaw, Beckley Equip. Co., Hydro-Mechanical Sup., Northern Indust. Sup.; Muskegon, Factory Sup. Co., Lake Shore Mach. & Sup.; Detroit, Paul Horst Co., Majestic Stamping Co., M P T Drives Co., Production Industries, Republic Rubber and Sup. Co., Tool Sup. Co.; Pouerc, Witco; Grand Rapids, Mackay Indust, Sales, Michigan Bearing Co., Schuster Equip. Co. Inc.; Kalamazoo, R. M. Sorlie Co.; Hazel Park, Welton Rubber & Asbestos Co.

MINNESOTA, HOPKINS, R. L. ACTON & ASSOCIATES; Fergus Falls, Empire Sup. Co.; Thief River Falls, Falls Sup. Co., Minneapolis, Industrial Sup. Co., Inc., Lakeland Engr. Equip., Minnesota Bearing; Austin, Powerrite Elec. Motor.

MISSISSIPPI, Jackson, Harper Fdry. & Mach. Co., Mississippi Fdry. & Mach.; Greenville, Jackson Sup., Inc.

MISSOURI, KANSAS CITY, DAVID M. BOATRIGHT, S. D. Calloway Co. Inc., Industrial Bearing & Trans. Co., Noelling Steel Sales Corp., Kansas City Rubber & Belting; Lebanon Sup. Co.; St. Joseph, Wildhagen Mach. & Sup. **ST. LOUIS, JAMES B. FLANERTY,** Missouri Elec. Sales & Serv., R. J. Bearing Corp., Carter-Ryco Sales, Inc.; Springfield, Acme Fdry. & Mach. Co.

MONTANA, Great Falls, Carl Weissman & Sons; Missoula, Power Trans.

NEBRASKA, Omaha, Edw. J. Heck & Sons Co., Omaha Gear & Parts; Grand Island, Kelly Sup. Co.

NEVADA, Las Vegas, Reliable Bearing & Sup.

NEW JERSEY, Plainfield, R. M. Barwise, Inc.; Fair Lawn, Service Power Trans. Co.; Trenton, Trenton Bearing Co.

NEW MEXICO, Albuquerque, Harry Cornelius Co.

NEW YORK, New York, R. M. Barwise, Inc., Cangro Trans. Co.; Troy, Bearing Distrs.; Rochester, H. M. Cross & Sons; Bronx, Duane Trans. & Equip. Corp.; Riverhead, Eastern Welding Co.; Hicksville, Long Island Trans. Co.; Buffalo, Mey Chain Belt Co., Power Drives, Inc.; Syracuse, Sawyer Engr. Co., Syracuse Bearing; Albany, Transmatic Equip. Co.; Elmira, Harold Van Ausken Mill Sup.; Lockport, Ward Bros. Mill Sup. Co.

NORTH CAROLINA, Lenoir, Blue Ridge Hardware & Sup. Co.; Statesville, Bryant Sup. Co., Tri-State Distrs., Inc.; Gastonia, Bryant Sup Co., Gastonia Mill Sup. Co.; Rocky Mount, Carolina Mach. & Sup. Co., H & S, Inc.; Kinston, Carolina Mach. & Sup. Co.; New Bern, Craven Fdry. & Mach. Co.; Mount Airy, Currier-Withers Sup. Co.; Raleigh, Elect. Equip. Co.; Wilmington, General Sup. Co., Mill & Contractors Sup. Co., Wilmington Iron Works; Lexington, General Trans. Sup.; Roanoke Rapids, Industrial Distrs. Inc.; Charlotte, Industrial & Textile Sup. Co., Henry Walke Co.; High Point, Kester Mach. Co.; Winston Salem, Kester Mach. Co.; Greensboro, O'Dell Mill Sup. Co.; Shelby, Shelby Sup. Co., Inc.; Burlington, Sykes Sup. Co.

NORTH DAKOTA, Fargo, Empire Sup. Co.; Jamestown, Empire Sup. Co.; Bismarck, Empire Sup. Co.; Grand Forks, Grand Forks Sup.; Minot, Minot Sup. Co.; Williston, Williston Sup. Co.

OHIO, Cincinnati, Cincinnati Trans.; Cleveland, C. J. Edwards Co.; Toledo, Gear Prod. Co., Toledo Belting & Sup.; Columbus, White-Orr Co.; Canton, Wilkof Indust. Sup.

OKLAHOMA, Tulsa, Allied Bearings Sup., Clark Bearing & Sup. Co.; Chickasha, Chickasha Gin & Mill Sup.; Oklahoma City, Dagwell-Dixie Co., Equipment Sales, Power Equip. Inc.; Muskogee, Pate Indust. Sup.

OREGON, PORTLAND, J. W. MINDER CHAIN & GEAR CO.; Medford, Cal-Ore Mach. Co., Inc.; Eugene, Electric Steel Fdry. Co.; Astoria, Fisher Bros. Co.; North Bend, Industrial Steel & Sup. Co.; Salem, Mill Sup. Co., Grant Pass, Pacific Logging & Mill Sup.

PENNSYLVANIA, ARDMORE, JOHN A. SHOEMAKER; Philadelphia, D. P. Brown Co., Inc., Rodney Davis Gear Co., Lindsay-Oberholzer & Co., Rothman Equip. Co.; Harrisburg, Industrial Motor Sup. Co.; Hazelton, Industrial Sup. Co.; Allentown, Keystone Bearing & Sup.; Pittston, Medico Industries Inc.; Pittsville, Chas. C. Morris Co.; Lancaster, Reilly Bros. & Raub, Scranton, Sherwin Bearing Co.; Muncy, Sprout Waldron & Co.;

PITTSBURGH, CHARLES R. SIMMONS, Banbury Equip. Corp., Hartley-Rose Co., Ritter Engr. Co.; New Kensington, Burrell Indust. Sup.; Ridgway, North American Indust. Sup. Inc.; Uniontown, Tri-State Mine Sup. Co.

RHODE ISLAND, Providence, James A. Starck.

SOUTH CAROLINA, COLUMBIA, THOMAS S. GLAZEBROOK, Columbia Sup. Co., Thackston-Davis Sup. Co.; Greenville, Carolina Sup. Co.; Charleston, Charleston Sup. Co.; Spartanburg, Crawford Mill Sup. Co., Noland Co., Inc.; Rock Hill, Manufacturers' Sup. Co.; Florence O'Brian-Mace Co.; Anderson, Seabrook Trans. Co.; Orangeburg, J. M. Smoak Hardware Co.; Summerville, Southern Mill Sup. Co.; Sumter, Sumter Mach. Co.

SOUTH DAKOTA, Sioux Falls, Western Bearing & Sup.

TENNESSEE, MEMPHIS, MALCOLM S. CONE CO., Dabney-Hoover Sup. Co., Lewis Sup. Co.; Nashville, Industrial Sales Co., Inc., Keith-Simmons Co., Inc.; Jackson, Motor Parts & Bearing Co.; Chattanooga, Noland Co., Inc., Volunteer Bearing & Trans.; Knoxville, Browning Belting & Sup. Co., Industrial Belting & Sup. Co., W. Savage Co.

TEXAS, DALLAS, R. C. BROWN CO., Allied Belting & Trans. Co., Bearings & Power Trans., Briggs Weaver Mach. Co., Coastal Plains Sup. Co., Engineering Sup. Co., Texas Rubber Sup.; Lubbock, Bigham Gin Sup. Co., Consolidated Gin & Sup., Industrial Sup. Specialists, M. B. McKee Co., Bearing Specialists; Fort Worth, Con El Sales & Engr. Co., General Indust. Sup., Great Western Sup. Co., Hall Bearing Co., Welsco Co.; Conroe, Conroe Mill Sup. Co.; Tyler, Cottingham's Inc.; Longview, Cottingham's Inc., Herritage Tool & Sup.; Plainview, Diamond Indust. Sup.; Houston, Diamond Sup. Corp.; Hou-Tex Sup. Co., Texas Belting & Mill Sup., Brownsville, Gilbert Bearing Service; Amarillo, A. D. Gugenheim Co.; Sherman, Hardwicke-Etter Co., McAllen, A. M. Hassell Sup. Co.; Marshall, E. B. Hayes Mach. Co.; Lufkin, Lufkin Fdry. & Mach. Co.; El Paso, Midcap Bearing Co., Patterson Sales Co.; Pecos, Navarro Sup. Co.; Waco, Richards Equip. Co.; Orange, Sabine Sup. Co.; Wichita Falls, Wichita Bearing Co.

UTAH, Salt Lake City, All Trans. Prods., Power Trans. Sup.

VERMONT, St. Johnsbury, Reed Sup. Co.

VIRGINIA, Bassatt, Blue Ridge Hardware & Sup. Co.; Martinville, Blue Ridge Hardware & Sup. Co.; Lynchburg, J. C. Ferebee Co., Ferebee-Johnson Co., Inc.; Roanoke, Graves Humphreys' Inc.; Waynesboro, Mize Sup. Co.; Petersburg, Tom Norton Co.; Richmond, Southern Railway Sup. Co.; Norfolk, Taylor Parker Co., Henry Walke Co.

WASHINGTON, SEATTLE, CHAIN GEAR, INC.; Spokane, Empire Bearing Co., Nott-Atwater Co.; Everett, Greenshield's Indust., Power Trans. Sales; Tacoma, Reel Mach. Co.; Bellingham, Schuman Steel Prod. Inc.; Mount Vernon, Trans-Bearing Co.; Longview, Longview Equip.

WEST VIRGINIA, Bluefield, Bluefield Hardware Co.; Charleston, Capital City Sup. Co.; Logan, Guyan Mach. Co.; Elkins, Valley Mill Sup. Co.; Huntington, Wall Conveyor & Mfg. Co., Banks-Miller Sup. Co.

WISCONSIN, Green Bay, Libert Bearing; Madison, Richard E. Ela Co.; Wausau, Sjoberg Indust. Sales; Milwaukee, Equipment Specialty Co.

CANADA, Vancouver, Victoria, Western Equipment Ltd.; British Columbia, Bennetts Ltd., Okanagan Equip. Ltd.; Alberta, Electrical Ind. Ltd., Electrical Cont. & Mach. Co. Ltd., Oliver Chem. Co. Lethbridge Ltd.; Saskatchewan, Bearing & Trans. Supply, Tractor Repair Parts Co., Manitoba, Cuthbert Co. Ltd.

Circle 53 on Reader Service Card

This Hopper on your truck

CAN CUT HANDLING COSTS 50%

Here's the fastest, lowest cost method of handling bulk materials and small parts—hot or cold, wet or dry.

One man with a Roura Hopper can do the work of two and do it in half the time. Loaded Hopper is picked up by the truck operator in a matter of seconds. Platform or forks slip into underframe and it can't slip off.

DUMPS ITSELF

Loaded Hopper is transported to its destination—operator trips the latch—and the Hopper automatically dumps its load, rights itself, locks itself.

RIGHTS ITSELF

Thousands of Roura Hoppers are now in use handling scrap metal, hot forgings and castings, cinders and aggregate, pickles—and dozens of other items.

LOCKS ITSELF

They're made in eight sizes, ⅓ to 4 yards capacity. Built of 3/16" steel plate with continuous arc-welded seams. Heavier plate if desired, also stainless steel or galvanized. Mounted on live skids or with a choice of wheels. Can ship standard models immediately.

ROURA
Self-Dumping
HOPPER

ASK FOR BOOKLET. Just clip this coupon to your letterhead and mail. We'll send illustrated literature. No obligation.

ROURA IRON WORKS, INC.
1411 Woodland Ave., Detroit 11, Michigan

Circle **78** on Reader Service Card

PRODUCT NEWS

Continued from page 34

Non-Jam Spiral Conveyor

Pitch increases from flight to flight. Material moves at increasing rate per revolution, carryover does not

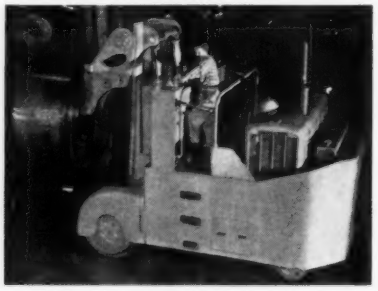
pack in screw cavities. Progressive Pitch conveyors are made in any pitch, diameter, and capacity, with right or left-hand flights. Continuous weld on all flights.

Worley Equipment, Inc.

Circle **303** on Reader Service Card

Power for Large Trucks

Diesel-electric power units in three models that fit trucks in 15,000 to 80,000 lb. range. Combine low oper-



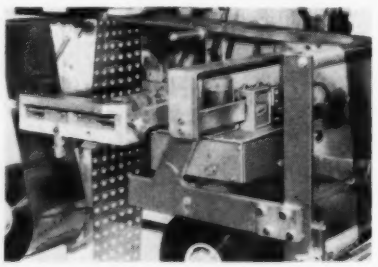
ating costs with maintenance-free operation, says maker. No contactors or resistance boxes. GM diesel engines operate at constant speed, voltage is varied for desired power output. Hydraulic power from direct-driven pump on engine.

The Ready-Power Co.

Circle **304** on Reader Service Card

Marks Strip Packs

Imprinting attachment for strip packaging machines applies trade-



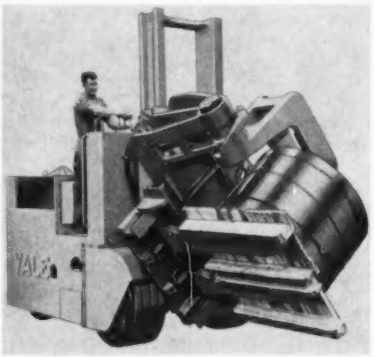
marks, code-dates, etc. to heat-sealed unit packs. Heat-resistant fluid ink withstands heat-sealing, won't come off on sealing rolls. Exact registration at any interval on pods, surrounding areas. The 780 Rolaprinter attaches easily, prints areas to 10" across web.

Adolph Gottscho, Inc.

Circle **305** on Reader Service Card

Upends, Palletizes, Transports Coils

Attachment for maker's lift truck handles 10-ton steel coils with ease. In sequence it: picks up a pallet, rotates it on forks to vertical position; spears coil with ram, rotates the coil



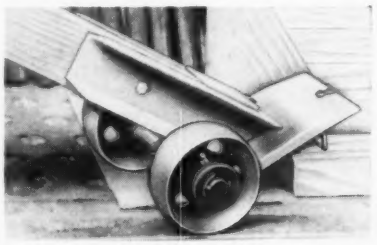
90° and touches end to the pallet; upends the coil (pallet becomes horizontal); spots the coil. It takes about 2½ minutes for the job.

Yale & Towne Mfg. Co.

Circle **306** on Reader Service Card

Handy Freight Pry

You get easy, safe moving of heavy cases, crates, die blocks, machines with model 103B freight pry. It also pulls spikes and nails, saves



time and labor, necessity of crowbars, other devices to remove blocking in freight cars, trucks. Hickory handle-84" long; wheels-5" x 2¾". Capacity—5,000 lb.

Nutting Truck and Caster Co.

Circle **307** on Reader Service Card

Crane Man Handles Coils Alone

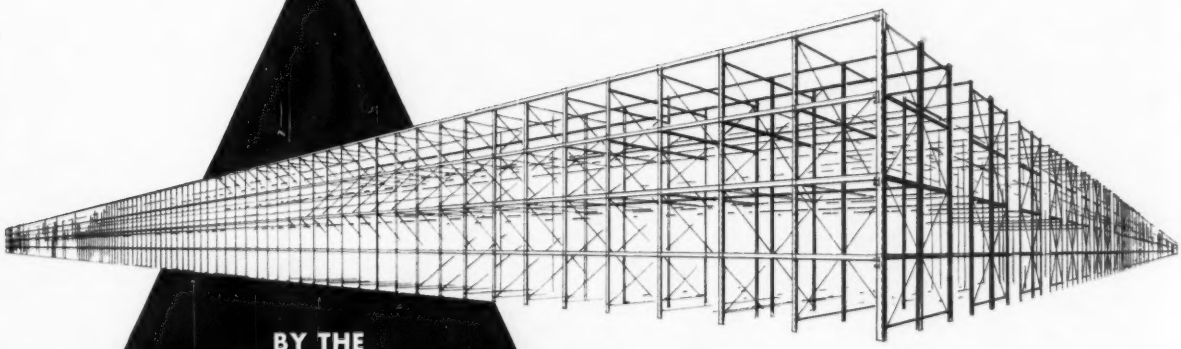
Tong coil lifter with motorized swivel grabs, lifts, carries and rotates, sets down and releases. It fits a com-

Continued on page 92

22 ACRES OF NEW FACILITIES

Our newest factory for the manufacture of storage racks, Springfield, Tenn.

another symbol of leadership



BY THE WORLD'S MOST ADVANCED MAKER OF QUALITY STORAGE RACKS

Better production facilities produce better storage racks. That's why we're proud to bring you news of this advanced new STURDI-BILT plant. Now more than ever, you'll always do better with STURDI-BILT . . . in quality, in design, in engineering, in reliability and economy. And remember—only STURDI-BILT Storage Racks give you all these in-use benefits:

- **unmatched safety and stability**
- **fast, easy assembly**
- **complete adjustability**
- **add-a-section versatility**

. . . **plus patented* FLOAT WEDGE construction**

BUY BETTER—BUY STURDI-BILT

Let this symbol be your guide

STURDI BILT
Racks the goods of the world

STURDI-BILT Material Handling Division
Union Asbestos and Rubber Company
332 South Michigan Avenue, Dept. MHE-1
Chicago 4, Illinois

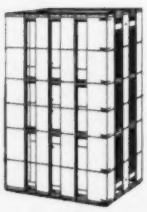
We want to know more. Without obligation, please bring us up to date on the latest details on STURDI-BILT Adjustable Storage Racks.

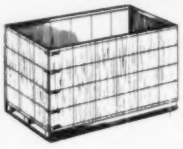
NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____

Circle **87** on Reader Service Card

"SUPERSTRONG" joins the St. Regis Family

There's another branch on the spreading St. Regis family tree . . . the 105-year-old Rathborne, Hair & Ridgway Box Co. But it's the same fine source for Superstrong Wirebound Boxes and Crates, Pallets and Pallet Boxes – first choice in this field for rugged shipping containers.





CALL CAnal 6-0973 or write Dept. 300

WIREBOUND BOX DIVISION

St.Regis PAPER COMPANY

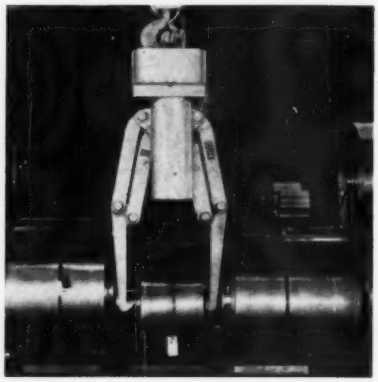
P. O. Box 4433 • Chicago 80, Illinois

REPRESENTATIVES IN ALL PRINCIPAL INDUSTRIAL AREAS

Circle 105 on Reader Service Card

PRODUCT NEWS

plete range of coil widths. The crane operator works it. Legs are vertical at any opening size, will pick coil up,



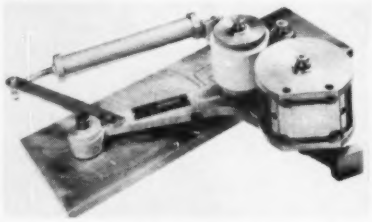
put it down with only 12" between stacks. Takes any width coils.

Cullen-Friestedt Co.

Circle **308** on Reader Service Card

Coder Fits Sealers

Marks front and side of filled cartons in 1 cycle. Attaches to compression sealers. Features pneumatic check and spring which regulates marker's



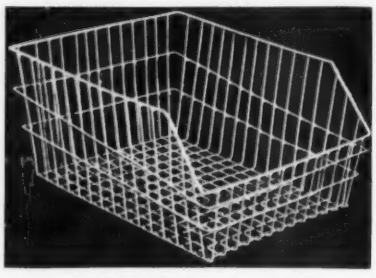
movement, cushions it from vibration. Uses base-lock rubber type, easily interchanged. Won't skid on carton. Self-contained ink reservoir.

Industrial Marking Equipment

Circle **309** on Reader Service Card

Basket Won't Corrode

Wire basket coated with Plastisol,



a tough, durable plastic said to be difficult to strip or damage. Imper-

vious to grease, oils, many chemicals. Non-toxic, won't flake or pit. Stack compactly for storage. Many sizes.

Abbey Wire Works, Inc.

Circle **310** on Reader Service Card

More Power in Small Package

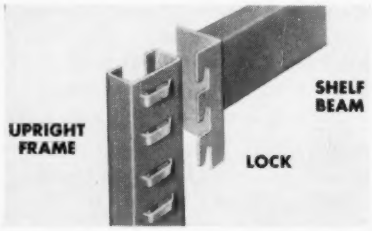
Vertical hollow-shaft motors give more hp in smaller space, as well as longer life and reduced maintenance, maker says. Line has been redesigned to accomplish this. Many models in all types to choose from in range from 1 to 1,000 hp.

Allis-Chalmers

Circle **311** on Reader Service Card

Rack Installs Fast

Series 75 adjustable racks have only 2 basic parts—the upright frame, and the shelf beam. No loose parts, no



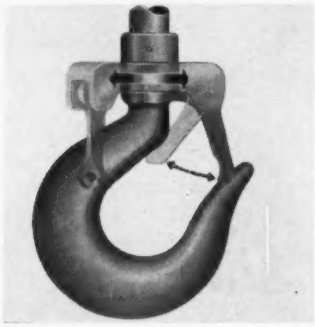
bolting. Shelf and beam lock together by hand in single, double, multiple sections. Adjust on 3" centers floor to top even in bracing areas. Accessories hold drums, barrels, wood shelves.

Palmer-Shile Co.

Circle **312** on Reader Service Card

Safety Crane Hook

Safety catch on hook locks at 2 points, prevents load detaching. Oper-



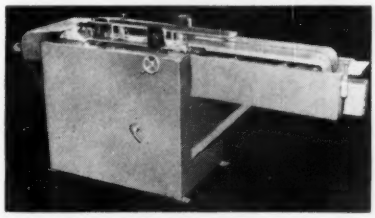
ator snaps load sling onto hook without using hands to open catch. If full throat opening is needed, he swings catch to side with one hand. Capacities: ¼ to 30 tons. Hook drop-forged steel, catch cast bronze.

Shepard Niles Crane & Hoist Corp.

Circle **313** on Reader Service Card

3,000 Blisters/Hour

Model C makes 90 or 180 degree flanges on any thermoplastic sheet



.005 thick or more. It folds blisters to fit cards from 1¼ to 14 inches in width—card thickness up to ⅛ inch. Machine adjusts easily for variations in flange and foldover. Machine former measures 100" x 30" x 44" high, weighs 750 lb.

Tronomatic Machine Mfg. Corp.

Circle **314** on Reader Service Card

New Caster Line

Series 90 casters are made in swivel and stationary models. You have a choice of 4-, 5-, 6-, and 8-inch wheels. Positive lock brake avail-

Continued on page 95

Laher

ELECTRICS

AMERICA'S MOST COMPLETE LINE OF ELECTRIC TRUCKS, CARS AND FORK LIFTS

30 MODELS FOR EVERY MATERIAL AND PERSONNEL HANDLING NEED!

NEW LAHER DELIVERY – available with or without fiberglass cab, easily removable doors, capacity 1400 lbs. platform size 58" x 42", available with battery charging motor generator for almost unlimited mileage.

LAHER "ALL-PURPOSE" TRUCK and NURSERYMAN – toughest most versatile electric truck made, 16 gauge diamond plate body, short wheel base for extreme maneuverability – capacity 1400 lbs.

LAHER POWER LOADER LIFT, the most modern, maneuverable, easy to operate Fork available for 1000 to 1500 lb. lifts.

LAHER "PERSONNEL & SHOP CAR"

MATERIAL HANDLING DISTRIBUTORS: A FEW OUTSTANDING TERRITORIES STILL AVAILABLE. Write for 1961 Catalog and Particulars.

LAHER "BELL-HOP" – UTILITY – most versatile personnel carrier – A must for motels–hotels and plant personnel – carries six people plus luggage, etc.

Refer Sweets Catalog – engineering section – also Thomas Register

All Laher electrics feature exclusive LAHER LUB-O-MATIC control switches; AIR-VAC spring suspension; custom engineered heavy duty Laher Batteries; 2½" alloy channel steel frames; powerful G.E. motors; instant servicing with hinged tip-up bodies on most models; finest electric chargers – both selenium plate and diode type.

WRITE TODAY FOR COMPLETE INFORMATION:

LAHER SPRING AND ELECTRIC CAR CORP.

2615 Magnolia St., Oakland, California

New Albany, Mississippi

Circle **49** on Reader Service Card

MOTO-TRUC

MAGIC CIRCLE STEERING

MAGIC Two-Wheel STEERING CIRCLE

...for high stacking stability plus narrow aisle turning

With MOTO-TRUC's *MAGIC CIRCLE* steering you can safely stack ceiling high with no sacrifice in maneuverability. MAGIC CIRCLE steering provides solid four wheel support, and up to 90° turns either side of center. There are no whipping casters to cause dangerous wobble or bucking . . . no complex steering linkage to increase maintenance or restrict turning.

No other small rider truck manufacturer offers the advantage of MAGIC CIRCLE two-wheel steering. It is available on all MOTO-TRUC high stacking outrigger trucks—in capacities to 4,000 pounds—for lifts up to 130″ standard. Higher lifts and capacities are available.

Write for the Moto-Truc Ride-A-Man truck catalog.

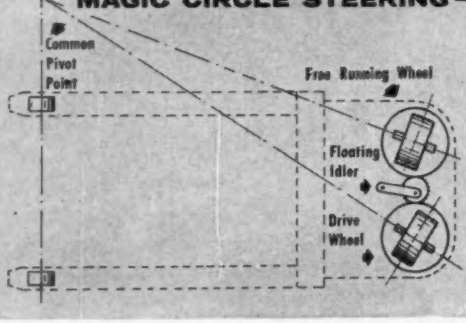
MOTO-TRUC PATENTED

The MOTO-TRUC Co.

1955 EAST 59th STREET
CLEVELAND, OHIO

Largest Exclusive Manufacturer of "Walkie" and "Small Rider" Type Trucks.

MAGIC CIRCLE STEERING—another MOTO-TRUC design exclusive.



All MOTO-TRUC high stacking rider models use Magic Circle steering for solid four wheel support that assures stacking stability and maximum maneuverability.

Here's How It Works:

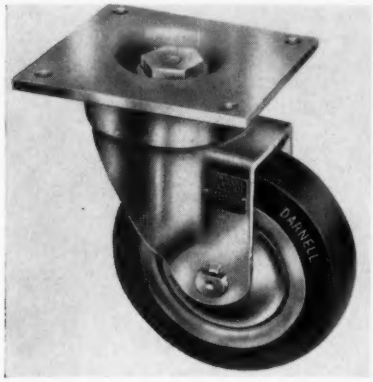
The two rear wheels — one driving, the other free-running — are provided with ring gears connected by a floating idler. The idler is positioned off-center so that the point of contact between idler and ring gear is always increasing on one wheel while decreasing on the other. This action provides perfect steering geometry through a full 90° turn either to right or left.

The MOTO-TRUC Company
CLEVELAND 3, OHIO

Circle 58 on Reader Service Card

PRODUCT NEWS

able. All wheels equipped with case-hardened and ground roller bearings



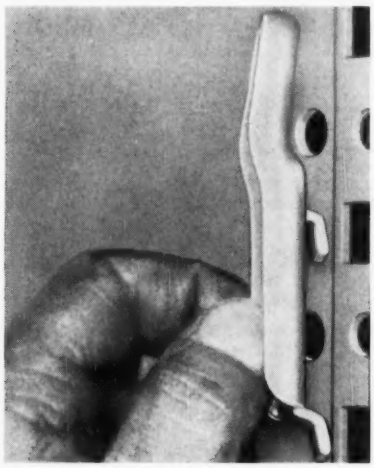
on hardened and ground spanner bushings. Zinc-plated and lacquered.

Darnell Caster Corp.

Circle **315** on Reader Service Card

Shelves in a Hurry

Line of steel shelving features a compression shelf clip. Units erect,



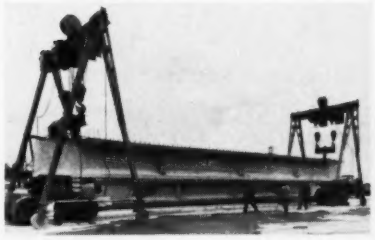
disassemble, rearrange without tools, nuts, bolts, or special adaptors. Shelf clip is finger-size, has 2 extrusions that fit firmly into slots on shelf uprights. You place clips in slots, slip a shelf over them, snap it into place with palm of hand. Upward push removes shelf. Clips easily changed to other positions, adjust on 1" centers. There's also a bin front clip.

Republic Steel Corp.

Circle **316** on Reader Service Card

Self-Raising Gantry

Colussus gantries can be erected quickly on the spot. Capacities to 30 tons. May be used to load a truck, dismantled and placed with the load, then reassembled at destination to un-



load the truck. Clear spans from 9 to 16 ft., headroom from 10 to 20 ft. Suitable for hand block and tackle or electric hoisting gear. Extremely stable, replaces makeshifts. Specials to 100 tons.

Ontario Equipment, Inc.

Circle **317** on Reader Serviec Card

Cotton Clamp Attachment

Maker has added three models to line of attachments for lift trucks in the 2,000 to 5,000 lb. range. Arm carriers are bushed with nylon to eliminate field lubrication. No grease gets on the bales. The bushings also stop metal-to-metal wear. Arm action is faster due to high volume oil supply and special design cylinders and check valves. Cylinders are self-aligning. Full width steel bumper on clamp face protects the clamp and bales. Clamp openings range from 67¼" up to 90".

Cascade Mfg. Co.

Circle **318** on Reader Service Card

Packaged Pneumatic Tube System

Erecto Airtube system augments existing setup, or installs new for smaller business. Package includes everything you need such as power unit, tubing, carriers, valves, hanging rods, etc. Installs easily. Simply determine station location, put in

the tubing, plug power unit into 110-volt outlet. Low noise level.

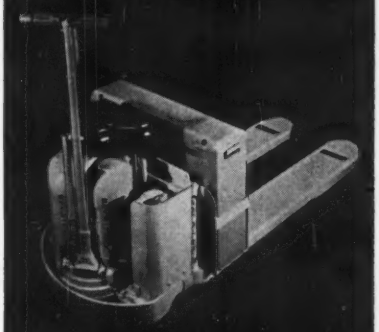
Lamson Corporation

Circle **319** on Reader Service Card

Continued on page 96

MOTO-TRUC

Leads the field in "Walkie" Pallet Trucks



The toughest little walkie in the business

■ Built to handle more loads at less cost, the MOTO-TRUC walkie pallet trucks is the most popular model on the market. Its ultra-simple construction means far less maintenance and greater dependability. Yet, in spite of its small size, it's built to take rough treatment and will give years of useful service on the severest jobs.

Moto-Truc walkie pallet trucks are available in 4,000 and 6,000 pounds capacity models with fork dimensions to fit any load.

Write for This Moto-Truc "Walkie" catalog today!

THE MOTO-TRUC COMPANY

1955 East 59th Street
Cleveland 15, Ohio

Circle **59** on Reader Service Card

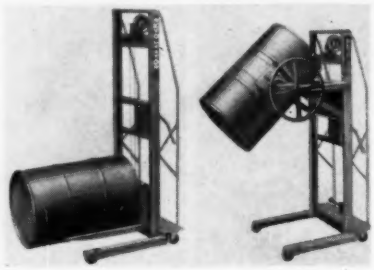
Circle 71 on Reader Service Card

LOOKING FOR
MAGNETS?
in NEW YORK
CALL
PERMAG
OLYMPIA 7-1818
(TWX: NY 4-4798)
in LOS ANGELES
CALL
PERMAG PACIFIC
WEBSTER 6-6251
(TWX: LA-2086)
WE CARRY IN STOCK ALL SIZES, ALL SHAPES, ALL GRADES
Magnets for every use . . . Alnico and ceramic . . . sintered and cast . . . are available from our huge stocks in New York and Los Angeles. Both plants offer services which include engineering, precision grinding, precision cutting and magnetizing. 24-hour delivery. Write for catalog.
PERMAG CORP.
88-06 VAN WYCK EXPRESSWAY
JAMAICA 18, NEW YORK
PERMAG PACIFIC CORP.
2910 S. LA CIENEGA BLVD.
CULVER CITY, CALIF.

PRODUCT NEWS

Handles, Pours Drums

The Blue Boy straddles drums, either on their ends or their sides, raises them with forks for placement in racks. Optional grab and tilt available for lifting and pouring at heights



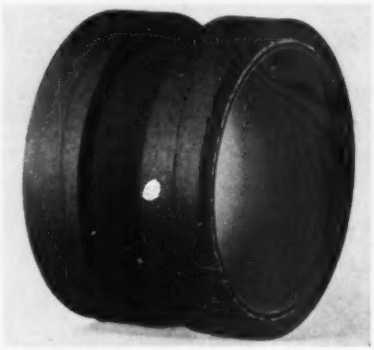
to 48 in. Hand, foot, battery-operated models. Capacities to 5,000 lb.

Revolvator Co.

Circle **320** on Reader Service Card

Belts Stay Clean

Sta-Kleen Dubl-Tread idler sleeve flexes belt, separates caked build-up from belt surface. Idler sleeve uses two treads instead of one, has a channel between them for band that anchors sleeve to idler. Belt surface



is flexed into twice as many sections as with a single tread. Sleeves are built to idler roll diameter.

Goodyear Tire & Rubber Co.

Circle **321** on Reader Service Card

Sling Chains Off the Shelf

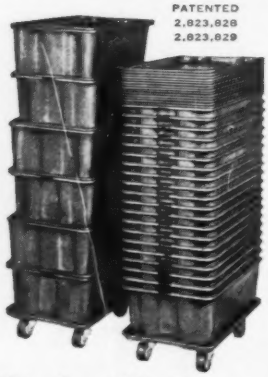
Kuplex sling chains are assembled by distributors from factory-tested components for quick delivery to users. Accoloy line offers a new safety hook with safety latch assembly.

American Chain Division

Circle **322** on Reader Service Card

Continued on page 98

Lewis Containers SOLVE EVERY HANDLING PROBLEM



Stack-n-Nest®
TOTE PANS

Only Lewis Stack-n-Nest tote pans stack **and** nest, within their own dimension, without any mechanical gadgets. Molded in one piece of Fiberglass reinforced polyester . . . can't dent, rust, rot or warp. Available in 8 sizes from 16"x10"x5" to 34"x24"x19", in grey, green, and red. Accessories include pan covers and 4-caster dollies. **Shipment within 24 hours from receipt of order.**

PLASTIBOX UNITIZED ASSEMBLY CONTAINERS

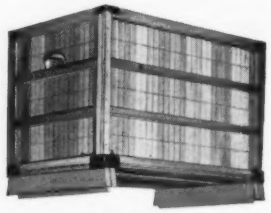
One piece, molded plastic. Strong, smooth, non-corrosive, easily cleaned. Stack securely and afford maximum storage of parts; 4 sizes in green or yellow. Accessories are available for a wide variety of bench or wall mounting. Truck assembly allows boxes to be quickly moved. **Shipment within 24 hours from receipt of order.**

PolyLewton
FOOD HANDLING PANS

Stack-n-Nest pans are available in this remarkable material developed for raw food handling. The glass-like surfaces are easily cleaned, have no crevices to harbor bacteria. Inside dimensions are 20"x12"x8", weigh 3¾ lbs., handle up to 50 lbs. **Shipment within 24 hours from receipt of order.**

WOVEN WOOD-and-WIRE HANDLING CONTAINERS

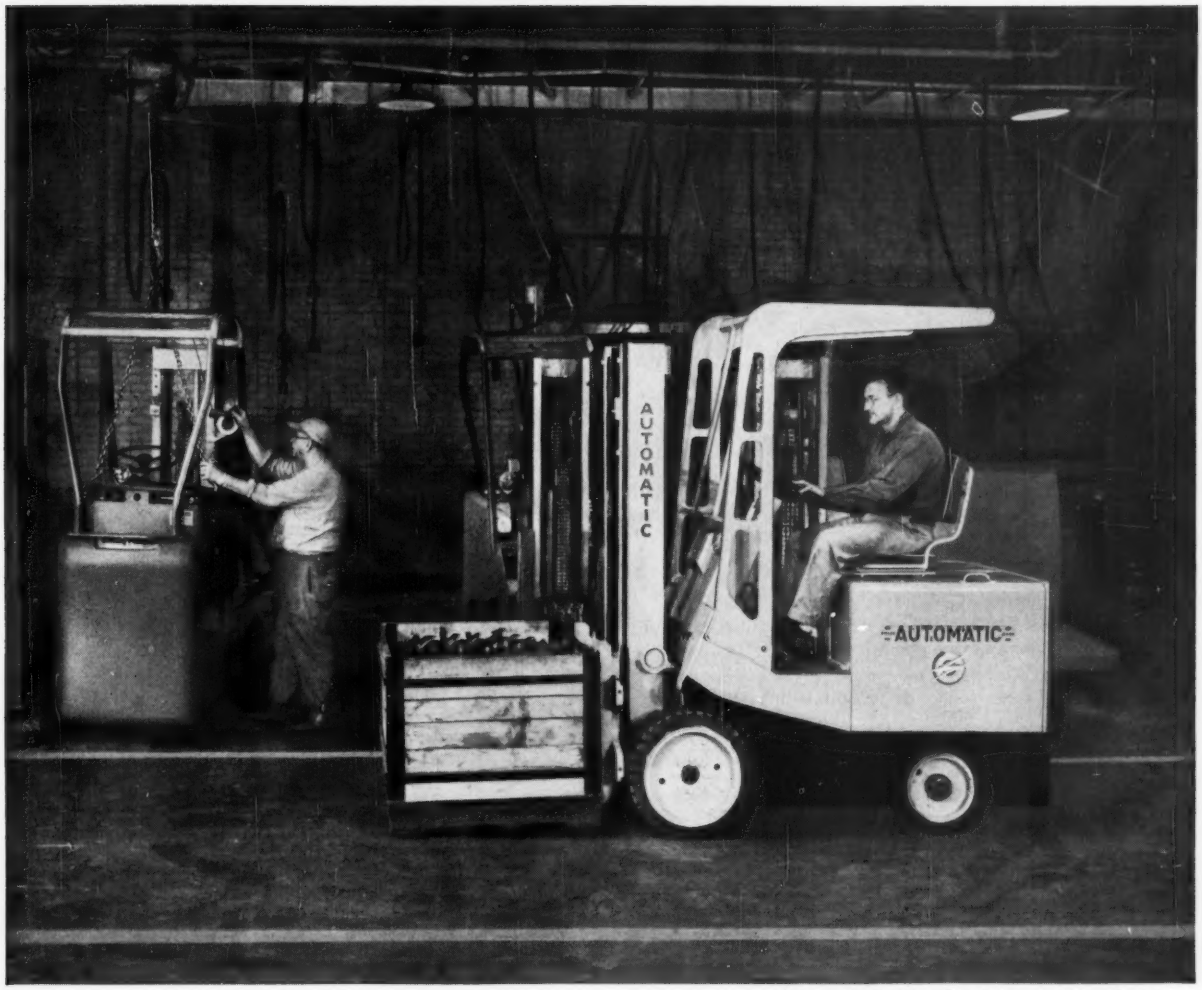
Tough, resilient wood-and-wire webbing is combined with a select hardwood frame, jointed at corners and reinforced with steel corner irons . . . here are husky, long-lived, big capacity containers available in many sizes and styles, including trucks and collapsible boxes. Designed for single or multiple handling with modern handling systems and equipment. **One to three week delivery.**



WRITE TODAY
for illustrated brochures on the complete Lewis material handling container line.

G. B. Lewis COMPANY
601 Montgomery Street, Watertown, Wisconsin

Circle **68** on Reader Service Card



Automatic Model ELF with Current-Miser Control

Does more work per battery charge

than any other electric truck!

Here's the lift truck that gives you even greater economy in battery powered electric lift truck operations—and then some! Thanks to Automatic's exclusive Current Miser Control, Model ELF works up to 60% longer in maneuvering operations per battery charge. Battery power previously lost in maneuvering operations through wire or carbon type resistors is now put to work which means more tons of material moved at less cost.

You'll find Model ELF's high torque characteristics a real plus in climbing up to 15% grades under full load. Its fast travel and lift speeds make it ideal for plant and warehouse operations.

Get the full story on the ELF series of electric trucks in capacities from 3,000 to 10,000 lbs. **Write today for specification bulletins on the ELF series.**

FIRST in Imagination...
FIRST with Reality

AUTOMATIC® **AUTOMATIC TRANSPORTATION COMPANY**
Division of The Yale and Towne Manufacturing Company
141 W. 87th Street, Dept. A1,
Chicago 20, Illinois

Circle **102** on Reader Service Card

Circle 47 on Reader Service Card

ON-TIME maintenance cuts down-time DOWN

Hobbs

INDUSTRIAL HOUR METERS

For use with gasoline, electric and diesel powered equipment

PLANNED MAINTENANCE based on actual hours of use is the answer to more GO-time and less DOWN-time on your equipment!

TRUE RUNNING TIME gives you a realistic basis for renting and leasing, service contracts, buying and selling.

HOBBS electrical timing instruments are the basic source for the facts you need — revolution counters cannot do the job. Distributors in principal cities . . . WRITE FOR CATALOG 600.

John W. Hobbs Corporation
A DIVISION OF STEWART-WARNER CORPORATION
2061 YALE BLVD. SPRINGFIELD, ILLINOIS
Symbol of SW Excellence

MOTORIZED
COIL LIFTER
SAVES
STORAGE SPACE...
HANDLES COILS FASTER . . . SAFER

1 Lifter Handles Both Wide and Narrow Coils With Same Speed and Economy

This C-F Coil Lifter, under control of the Crane operator handles hundreds of coils a day in a large mill . . . wide, narrow, and of varying tonnage. Fast, infinite adjustments of the motorized legs permit quick pick-up and set-down. Legs can be opened to any width and held . . . no need to open to maximum width to handle narrow coil. Maximum of 12" required between coils of any width—saves storage room.

Positive tong grip on coil tightens as lift is made . . . insures safe handling. Made in motorized models for crane cab or pendant operation as well as manual types with chain wheel, in capacities from 3 tons up. Powered Rotating Heads available. Opening ranges to suit your requirements. Write for Bulletin and complete information.

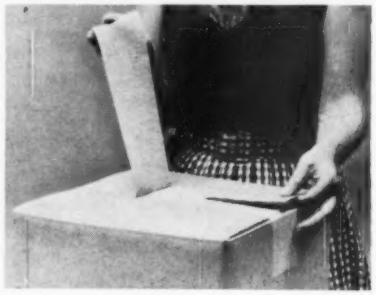
CULLEN-FRIESTEDT CO.
1320 South Kilbourn Avenue • Chicago 23, Illinois

Circle 111 on Reader Service Card

PRODUCT NEWS

Easy-Opening Tape

Reinforced gummed tape combines strength and easy opening. Stres-Pruf



E. O. is non-asphaltic glass fibre reinforced. Top layer rips off leaving a thin kraft layer that pops easily to open carton. Tape meets Rule 41 for two-strip closures.

Mid-States Gummed Paper Div.

Circle **323** on Reader Service Card

Needs No Lube

Handy Boy Model A uses sealed bearing device, does away with pe-

riodic lubrication, saves maintenance. Performance guaranteed by maker. Seals also keep out dirt and moisture. Belt travels either way, 65 fpm. Eight sizes, 6 to 20 ft. long.

Hytrol Conveyor Co.

Circle **324** on Reader Service Card

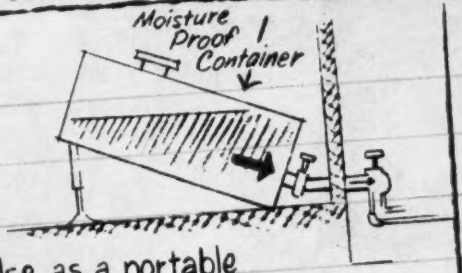
Armored Tire Resists Puncture

Has two plies of steel cables imbedded in rubber beneath the tread. Said to outlast standard industrial tires by 6 to 1. For places like scrap yards, debris-littered construction sites. All popular industrial sizes.

B. F. Goodrich Co.

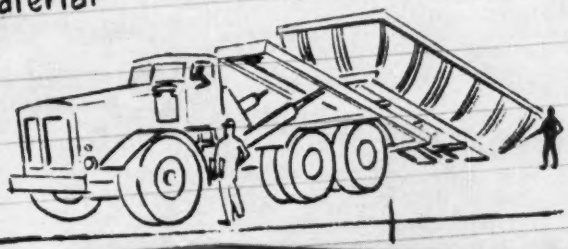
Circle **325** on Reader Service Card

Materials Handling Ideas with the Dempster Dinosaur



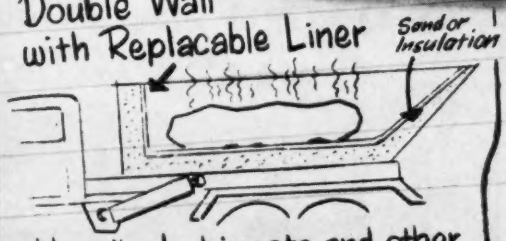
Use as a portable Hopper for temporary storage of wet or dry material

Use as a portable cable reel station - or for handling rolls of paper or steel

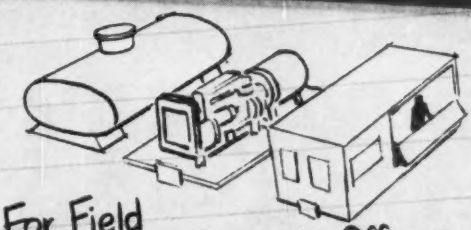


Shift heavy in-plant movements from rails to rubber with Dinosaur and 100,000 lb. capacity trucks... For slag... ingots... stone or chemicals.

Double Wall with Replacable Liner



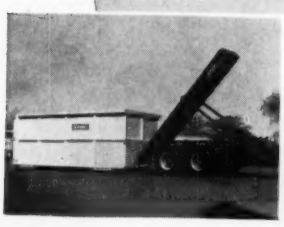
Handle hot ingots and other materials with insulated containers.



For Field Operations Portable Offices, Tool Sheds, Generators, Fuel Tanks, Compressors etc. can be moved to the site by the Dinosaur.

DEMPSTER BROTHERS offers a New Dinosaur Brochure, Free on Request

DEMPSTER BROTHERS
Inc.
Knoxville 17, Tenn. Dept. MH-1



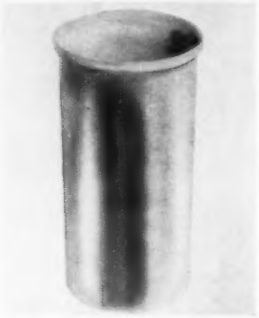
The DEMPSTER DINOSAUR®

Circle **106** on Reader Service Card

PRODUCT NEWS

Containers for Corrosives

Most any shape or size, capacities to 2,500 gals. Molded polyethylene. Lightweight, easily cleaned, resistant to chemicals. Made in simple molds by SinTrex process—per-unit cost on



small runs usually small, delivery faster. Engineering service offered.

Amos-Thompson Corp.

Circle **326** on Reader Service Card

For Light, Bulky Loads

Palletless. Unit loads of cartons supported by corrugated sheet are handled by Carton-Pak attachment on fork truck. Sheet is scored, makes channel to fit around bottom of load.

It overhangs special (2″ thick, 46″ long) forks. A string tie holds sheet against sides of base cartons. Top layer also tied for load stability. Technique known as Walsh Pack, developed by Owens-Illinois Glass Co.

Clark Equipment Co.

Circle **327** on Reader Service Card

Conveys Office Work

Monoflo conveyor moves the work from desk to desk at 12 fpm, workers stay put. Carries complete files, books, single sheets between stations up to 100 ft. apart. Uses rotating cable that goes around corners, up and down inclines. Mounts easily next to desks or suspends from ceiling. Moves in either direction; automatic discharge available. Simple to use.

M-H Standard Corp.

Circle **328** on Reader Service Card

Formulas Automated

System of portable bulk bins, discharge mechanisms, automatic weigh hoppers, and mixers combine for direct discharge of complete mixed formulas. All functions may be controlled by punch cards for automatic cycling. Floor space and number of ingredients are only limiting factors. Materials changed simply by changing bulk bins, no complicated conveyors are needed.

Tote Systems, Inc.

Circle **329** on Reader Service Card

Bags Filled Fast, Accurately

Net weighing bagger for materials like charcoal briquettes accurately measure portions up to 25 lb., feeds them into bags. There may be 1, 2, or 4 independent units; each fills 10

OPEN ANY FREIGHT CAR DOOR IN 20 SECONDS OR LESS with the

NOLAN

ONE-MAN CAR DOOR OPENER

Write for complete details and railway products catalog

ONLY **$45.00** F.O.B. Bowerston

The Nolan Co., 110 Pennsylvania St., Bowerston, Ohio

Circle **66** on Reader Service Card

PUMPS most anything* THAT POURS!

*A few exceptions. Write for approved list.

Take the risk and waste out of liquid transfer! This rugged Tokheim Hand Pump, with alternate diaphragms, handles most anything from diesel oil to acetates—safely, quickly, without spillage. Eliminates fire hazards and accidents, aids good housekeeping. Accelerates production, too. Pumps 20 gallons per 100 strokes. Get list above from your Tokheim dealer, or write direct today.

General Products Division

TOKHEIM CORPORATION

1668 Wabash Avenue **Fort Wayne 1, Indiana**

Subsidiaries: GenPro Inc., Shelbyville, Indiana; Tokheim of Canada, Ltd., Toronto, Ontario; Tokheim International, A. G., Lucerne, Switzerland

Circle **91** on Reader Service Card

bags/minute. Scale has no knife edges to wear, is not affected by dust, moisture.

Thayer Scale Corp.

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Sweeps Abrasive Dusts

Specially equipped for sweeping abrasive and conductive dusts. Tennant Model 40-DP features: special engine filter; 21-5 sq. ft. vacuum filter; fully sealed ignition that prevents shorts from metallic dusts; dust-protected bearings on brush hubs.

G. H. Tennant Co.

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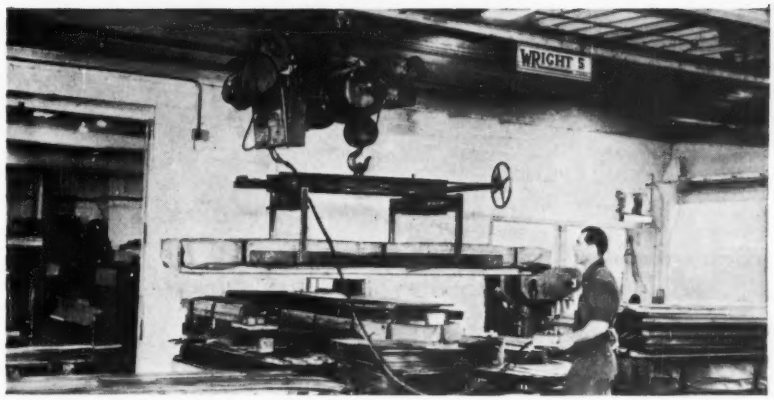
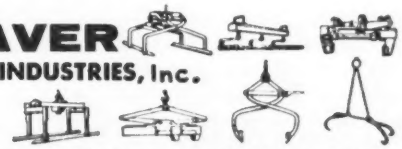


DOUBLE STEEL STOCK without INCREASE in STORAGE SPACE with a MANSAVER® GRAB

Before installing an electric hoist, a two-way bridge crane and a Mansaver Grab, serving the entire length and width of the steel storage room, the company employing this system of handling never thought of stocking more than 250 to 300 tons at a time. Now they carry 750 to 800 tons. In addition, handling man-hours were cut in half. The installation cost many times less than a new building with its added heating, lighting and maintenance costs.

Ask our District Representative into your plant to study your handling problem for presentation for our solution.

MANSAVER INDUSTRIES, Inc.
3103 East St.,
New Haven, Conn.



Also Manufactured in England by George W. King Co. and in France by Ets. Dujardin et Cie.

YOUR GOOD PRODUCT DESERVES TO BE SHIPPED with THE PROPER MARK

MARKING RULE 6 says: freight must be stenciled or otherwise durably and plainly marked.

DURABLY means in a durable manner; lasting in spite of hard wear or frequent use. (You get durability with D-B ROL-IT-ON stencil inks.)

PLAINLY means easy to read. The marking should be as large as possible. (There is a D-B stencil machine in a letter size to meet your every marking need.)

FOR FURTHER INFORMATION WRITE...

DIAGRAPH-BRADLEY INDUSTRIES Inc.
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DISTRIBUTORS IN ALL PRINCIPAL CITIES

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engine exhaust...

"made safe enough for a baby"

CATALYTIC PURIFIERS

Practical, fully tested and approved, will make your industrial engine exhaust safer. Dangerous Cancer Suspect Hydrocarbons and Carbon Monoxide reduced to safe levels will increase employee productivity; increase profits. Oxy-Catalyst Exhaust Purifiers will convert gasoline, LP gas or diesel exhaust into harmless vapor for safer indoor operation of lift trucks, sweepers, engine-generators, construction and mining equipment.

Also inquire about our Fume and Odor Elimination Equipment for industrial processes.

OXYCAT

AIR POLLUTION CONTROL

OXY-CATALYST, INC.
Berwyn, Pa.
Catalyst for cleaner, safer Air

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ASSOCIATIONS

MHI The Material Handling Institute, Inc., has canceled its regional trade show scheduled for Los Angeles, March, 1962. Since a material handling show was held there in 1960, MHI is going along with a policy that there should be at least 3 or 4 years between shows in the same marketing area.

The MHI 1961 Regional Trade Show Program gets underway Feb. 22-24 with the Pacific Coast Show in San Francisco's Cow Palace. From May 9-11, the Eastern States Show will be held at the Trade and Convention Center, Philadelphia.

Robert F. Moody takes over the presidential responsibilities of MHI for 1961. Moody is general sales manager of Hyster Co. He succeeds C. L. Fell, vice president, marketing, The American Monorail Co. Fell becomes a member of the board of directors. First vice president for the new year is Bert E. Phillips. He is vice president and general manager of the Industrial Truck Division, Clark Equipment Co. Phillips assumes chairmanship of the Institute's show committee. Also joining the officers' staff for 1961 is Norman A. Price, named second vice president. He is executive vice president, The Colson Corp. L. West Shea, president, Hanson & Shea, Inc., Pittsburgh, was reelected managing director. All elections were made at the annual meeting held at the Savoy-Hilton Hotel, New York City, Dec. 11-14. The Institute now has 87 members.

Moody

Phillips

WBMA Louis S. Beale, 71, secretary-treasurer and manager of the Wirebound Box Manufacturers Association since 1941 died Nov. 10. Mr. Beale was nationally prominent in the trade association management field. He was also treasurer of the Society of Packaging and Handling Engineers at the time of his death. He had served as director and vice president of the American Society of Trade Association Executives and chairman in 1950 of the Manufacturing Trade Associations Group of the National Industrial Council.

NEW 1961 OFFICERS for the Conveyor Equipment Manufacturers Association: Front row, left to right: President, E. H. Woodberry; Orlan A. Johnson, director and retiring president; George H. Woodland, vice president; E. L. Weinthaler, secretary. Back row: H. A. Barber, director; L. E. Brill, director; H. E. Murken, treasurer; R. C. Sollenberger, executive vice president, his 16th term. Mrs. Jayne B. Spain, president, Alvey-Ferguson Co., not shown, was also elected a director.

AMHS Chicago Chapter recently toured the Standard Oil Refinery at Whiting, Ind. This is one of the world's largest refineries and its material handling systems were of great interest to the members.

Cleveland Chapter held a joint meeting with SPHE in December. A theatre party highlighted the annual affair.

The Narragansett Chapter recently toured the Munroe Dairy at East Providence, R.I. They also heard an address by Robert P. Day, assistant chief engineer of Factory Insurers Associates. His subject: The Many Phases of Safety in Handling Products.

Los Angeles Chapter was recently addressed by J. Edward Martin and Allen McGill of Albert C. Martin & Associates. Subject: The Importance of Teamwork in Warehouse Design.

Niagara Frontier Chapter devoted a recent meeting to films and discussion on special material handling equipment for handling a banana crop. Covered harvesting through automatic boat loading and unloading.

Indianapolis Chapter recently had a meeting on "Pallet vs Palletless Handling." Speakers were H. L. Tygesson and S. W. Clauson, of the Automatic Transportation Co.

CFTMA New directors of CFTMA include R. R. Lippert, Kent Mulholland, and Frank Garbarino. Directors remaining on the board are:

Continued on Page 104

Another new UNIT-COLES crane for Major Electrical Manufacturer

Gasoline-Electric Mobile Crane combines unequalled precision, safety and mobility

This UNIT-COLES is assigned to moving raw and in-process material from storage areas at G.E.'s plant. Here, the 12-ton mobile crane with 25-ft. boom is handling rotor shafts to be used in large DC motors. The load weighs 15,700 lbs.

A new UNIT-COLES 12-ton gasoline-electric mobile crane was purchased recently by General Electric Company's Large Motor and Generator Department in Schenectady, N. Y. to move raw and in-process material. Four other UNIT-COLES Cranes are used for materials handling by various departments of the company.

Precise control and safety, unequalled by ordinary cranes, are two important benefits a UNIT-COLES brings to yard handling. That's because there are individual electric motors for independent or combination control of *every* function. Electric power and control of load-hoist and boom-hoist means an unbeatable combination for pin-point accuracy in spotting loads. An independent load-hoist power source automatically adjusts all speeds to the load; the crane operator can raise or lower a light load quickly—or ease a heavy load into place so carefully movement is barely visible. The independent swing and travel power sources allow an operator to navigate narrow aisles with ease and speed.

Utmost safety is assured by a positive-action Safe Load Controller with a "stop and hold" function that automatically prevents overloading. Self-resetting limit switches prohibit dangerous over-travel of load and boom. These outstanding safety features together with "fail-safe" *automatic braking* and dead man control on all crane motions contribute to make a UNIT-COLES the *world's safest crane.*

Other important UNIT-COLES advantages are: steering that is "left-for-left" and "right-for-right" whether the boom is over the front or rear of the chassis; unique cantilever boom that allows operation close to stacked material, requiring less aisle room; simplicity of operation — an inexperienced operator learns in a matter of minutes; and low maintenance costs — hundreds of major wearing parts required on other cranes, including clutches and hook rollers, are eliminated.

UNIT-COLES mobile and truck cranes are available in capacities ranging from 5 to 55 tons. Write today for details on the complete line and the name of your nearest dealer.

UNIT-COLES

UNIT CRANE & SHOVEL CORP.
6717 W. Burnham Street
Milwaukee 19, Wisconsin

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Circle 34 on Reader Service Card

NOW YOU CAN LIFT and DUMP ANY CONTAINER!

Dumping standard drums, barrels, boxes and bags is a cinch!

MORE IMPORTANT, no matter what size, shape or type container you use to process free-flowing material — even special in-plant containers — ESSEX can supply the necessary unit for dumping or work-positioning.

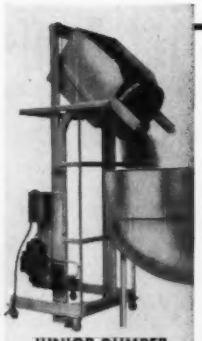
ESSEX Dumpers are flexible in design. They can be engineered to suit your individual requirements. For the safe, reliable, economical way to lift and dump (or position) material in any container . . . CALL UPON ESSEX FOR THE ANSWER.

SEND FOR NEW 8 PAGE INFORMATIVE CATALOG #59

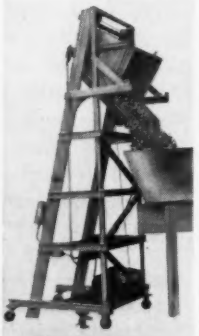
ESSEX CONVEYORS, INC.

Dept. MH, 101 Colden St., Newark 3, N.J.
In Canada: Griswold Engineering, Ltd., Montreal and Toronto

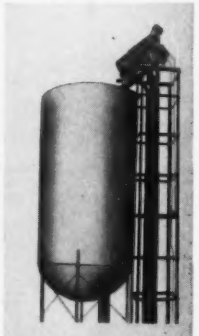
HYDRO-DUMPER
Dumps up to 4 feet (higher if platform mounted). Load capacity in excess of 6000 pounds.



JUNIOR DUMPER
Dumps up to 8 feet (higher if stationary unit). Load capacity 700 pounds.

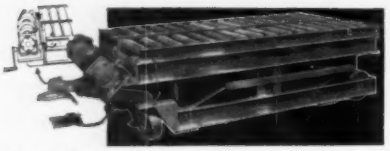


SENIOR DUMPER
Dumps up to 20 feet. Load capacity in excess of 4000 pounds.



VERTICAL DUMPER
Dumps to any practical height. Load capacity in excess of 4000 pounds.

New Dual Purpose
Weld-Bilt
Hydraulic Lift Table



Handles Heavy Dies, Sheet Metal Easily, Swiftly!

Equipped with a roller conveyor top and hand winch, this heavy-duty Weld-Bilt Hydraulic Lift Table is a *double-duty* unit. The winch simplifies moving heavy dies onto and off of your presses. Then swing the winch down and use the lift table to feed heavy sheet steel for press operation. The foot pedal control is an electric switch for powered raising or lowering table for press-height feeding. Capacities to 30,000 lbs.

Call on Weld-Bilt engineers for suggestions. Or write for bulletin No. HT 358.

WEST BEND EQUIPMENT CORP.
MATERIALS HANDLING ENGINEERS

335 Water Street • West Bend, Wis.

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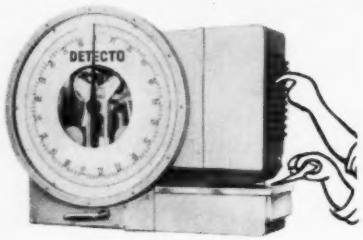

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PRINT THE WEIGHT

DETECTO SCALES

do it speedily... accurately

Find out how Detecto can streamline your plant operation. Write to . .
DETECTO SCALES, INC., Dept. MH-6, 540 Park Ave., Brooklyn 5, N. Y.

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ASSOCIATIONS

L. T. Williams, K. F. Heath, R. D. Mount, and C. B. Noelting.

E. M. Heffernan, vice president, Jarvis & Jarvis, Inc., has been elected president of the Caster and Floor Truck Manufacturers Association. He succeeds L. T. Williams, manager, Bond Foundry & Machine Co. Other newly elected officers are D. F. Adams, vice president, and D. B. Anderson, treasurer. Adams is vice president, The Colson Corp., and Anderson, executive vice president, The Nagel-Chase Mfg. Co. Heffernan has announced that CFTMA plans to undertake a product testing program, and eventually develop standard tests for products of the industry.

Heffernan

SPHE Northeastern Ohio Chapter of the Society of Packaging and Handling Engineers had James Talbot and Troy Christopher of the American Viscose Corp. as speakers at a recent meeting. They gave a presentation on Avistrap, a rayon cord used for banding.

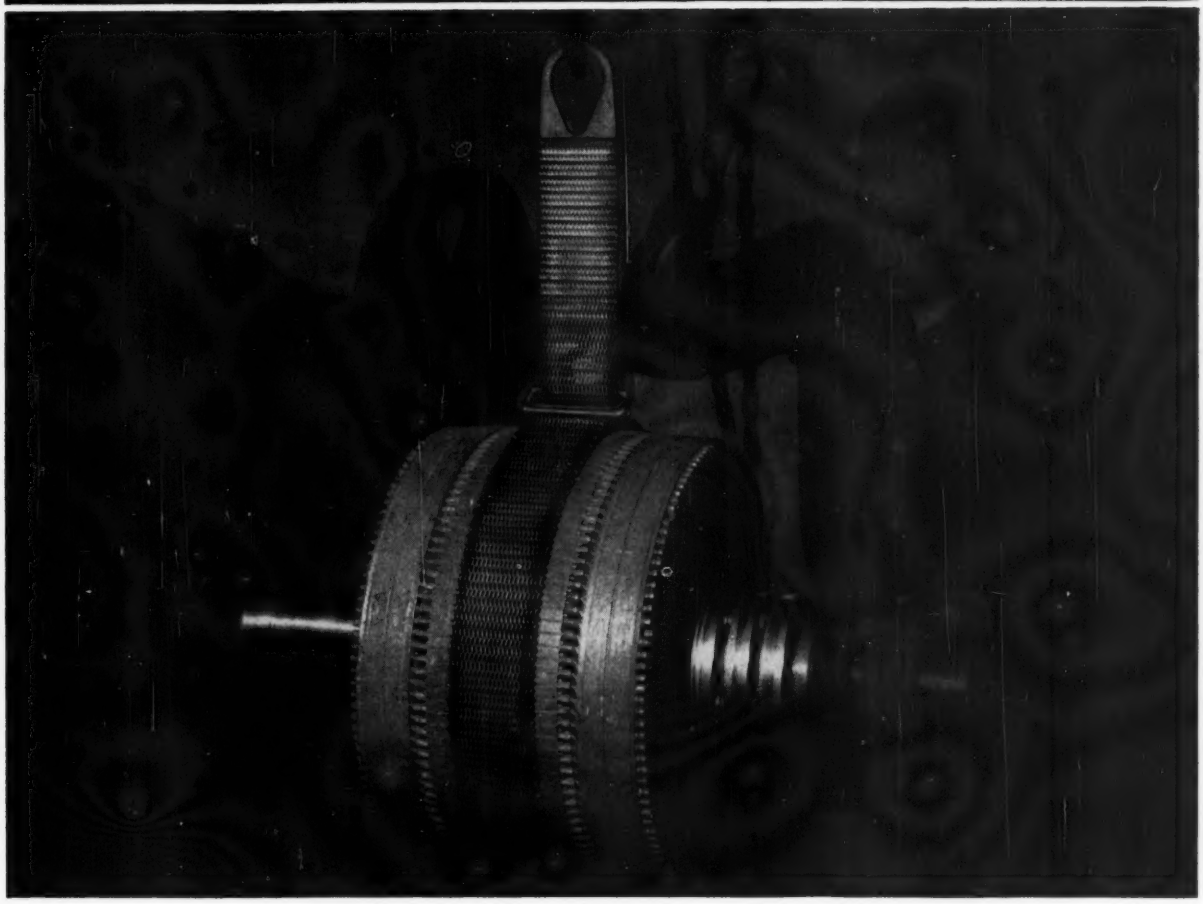
Central Ohio Chapter got the inside story on the packaging and handling of the Echo Satellite at a recent meeting.

Central California Chapter has elected the following new officers: Fred J. Hannum, president; Art Erickson, executive vice president; Jack Cunningham, Dick Cambridge, Tom Settle, Frank Hamilton, all vice presidents; and Albert B. Fisher, secretary-treasurer.

Seattle Chapter's new slate of officers: B. L. Alleman, reelected president; R. S. Leonard, vice president; S. A. Jablonski, secretary; and S. B. Peretti, treasurer.

R. C. Engel of the Missouri Chapter was recently elected West Central Regional Director. He takes over the unexpired term of A. F. Kunz. Engel is with the Atlas Paper Co. and has been a SPHE member since 1952. He served as president of the Missouri Chapter during the 1957-59 term.

GENTLENESS



Only GRIPPER® Metal Mesh SLINGS

give you gentle load handling + 6 other benefits

Safety, Strength, Flexibility, Load Stability, Longer Life, Fast, Easy Rigging

Imagine one man with a single Gripper metal-mesh Sling positioning a heavy motor armature without damaging delicate coils. That's fast, easy, *gentle* handling! The secret? The Gripper Sling's broad bearing surface that distributes the load over a wide area. There's no concentration of the load at one or two narrow points . . . no crushing action, even when handling thin-walled tubing.

For extremely delicate handling of polished stock ask about Gripper Slings with PVC or Neoprene coverings. And . . . pretested and guaranteed Gripper Slings are made in standard widths and lengths for loads up to 100,000 lbs.

Mail the coupon today for full information or a demonstration. Or, contact your nearest representative.

The Cambridge Wire Cloth Co.

Dept. W, Cambridge 1, Md.

☐ Please send Gripper Sling catalog and my distributor's name.

☐ Please arrange a no-obligation demonstration.

NAME_____ TITLE_____

COMPANY_____

STREET_____

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FOR MATERIALS ON THE MOVE

Universal

BUCKET ELEVATORS & BELT CONVEYORS

ARE ENGINEERED TO MEET YOUR NEEDS

Universal Bucket Elevators are designed as compact units, that will elevate your materials smoothly and surely. Standard steel, galvanized or stainless elevators can be supplied in complete "packaged" units . . . ready to install and put to work.

THROUGH RESEARCH AND MODERN PRODUCTION METHODS UNIVERSAL OFFERS YOU . . .

ADVANCED DESIGN — More compact, cleaner operating, smoother running.

GREATER ECONOMY — Low initial cost, low operating cost, minimum maintenance and repair.

EASIER INSTALLATION — Jig assembly at the factory assures precision-fitted components.

QUICK DELIVERY — Production line methods and rigid quality control assures fast delivery. Parts are kept in stock to avoid costly shutdowns.

Universal Bucket Elevators are available for capacities up to 3750 cubic feet per hour and may be obtained for any exact height.

UNIVERSAL "TROF-BELT" CONVEYORS

. . . offer a low cost efficient method of moving all free flowing materials. Low initial cost, less maintenance and trouble-free service are made possible because of the smooth rollerless design.
There's a Universal "TROF-BELT" conveyor designed to meet your specific needs in capacities up to 3,750 feet per hour.

GUARANTEE

Universal guarantees complete satisfaction within 60 days or full purchase price will be refunded. Materials and workmanship guaranteed for one year.

Send For Free Literature and Prices

Universal HOIST CO.

Box 130 Cedar Falls, Iowa

Circle 113 on Reader Service Card

mhe INDUSTRY NEWS

General Atronics Corp. Names Executive Vice President

George J. Laurent has been named executive vice president of General Atronics Corp. He served as a vice president and secretary-treasurer of the research and consulting firm since he figured in its founding 5 years ago. He is also president of Atronic Products, Inc., a company subsidiary.

Laurent

Under his guidance, Atronics recently developed and marketed the Carton Selector, and a Parts Counter.

Ace Engineering Moves

Ace Engineering Co. has moved from Oakland to larger quarters at 222 Napoleon St., San Francisco. The new headquarters combines offices and warehousing. Ace Engineering is a division of Bulldog Pallet Co., Newark, Calif.

General Box Co. Enters Plastics Packaging Field

Formation of a Plastics Division that will produce polystyrene foam plastic for packaging is announced by General Box Company.

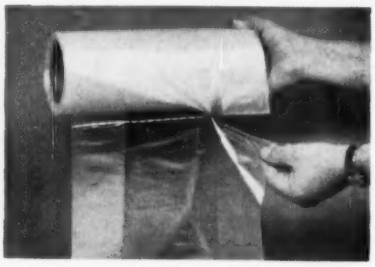
Keene

Work at the plant in Des Plaines starts this month. Charles E. Keene, former manager of General Box's wirebound and corrugated plants in Meridian, Miss. is manager of the new division. Superintendent is Harold F. Shroyer, formerly president of Insta-Mold Plastics, Inc.

According to company officials, the 39-year-old firm is the first major shipping container manufacturer in the U.S. to both design and mold plastic packaging materials. General Box is one of the nation's leading manufacturers of wirebound boxes and crates, and an expanding producer of corrugated containers. It operates 17 container manufacturing plants and 4 raw material veneer mills.

Bag Packaging System Wins Industrial Award

Bemis Bro. Bag Co. of Terre Haute, Ind., won a top industrial award for the packaging of its polyethylene bags



in the 1960 National Flexible Packaging Association competition.

The bags are shipped in perforated rolls. They're dispensed like paper towels. Individual bags are snapped off the suspended roll with less effort than would be required to pick up the same size bag from a carton. Judges of the contest considered this deserving of special recognition.

Mathews Conveyer Buys the Tobert Company

Mathews Conveyer Company of Ellwood City, Pa. has purchased the Tobert Company of Lansing, Mich. Tobert makes Live-Flo oscillating conveyors.

The Live-Flo units will be an addition to the Mathews line of power and gravity conveyors and special conveying machinery. All of the Tobert manufacturing operations will be moved to the Ellwood City plant.

Thomas Keegan, president of Tobert, joins the staff of Mathews at Ellwood City on the further development and marketing of this product which will be known as Mathews Live-Flo conveyors.

Maubert Elected A Vice President of Case Co.

Henry J. Maubert has been elected a vice president of the J. I. Case Co.

Maubert

He is director of procurement, materials, and traffic for the Racine, Wis. manufacturer of industrial and agricultural tractors and equipment.

He was previously employed by Westinghouse Electric Corp. in successive management responsibilities.

Originally from France, Maubert served in the French Army in World War II, was a member of the Free French Underground. He is a survivor of the notorious Buchenwald concentration camp.

Heil Co. Acquires Material Handling Business

The Heil Co. has acquired the material handling equipment business of the Ingersoll Kalamazoo Division of Borg-Warner Corp. Terms were not announced.

Machinery and fixtures used in production will be moved from Kalamazoo, Mich. to Heil's main plant in Milwaukee. It will be operated as part of the Body and Hoist Division of The Heil Co.

Silent Hoist Advancements

Maurice M. Botnick, general sales manager, has been elected vice president in charge of sales for Silent Hoist & Crane Co., Inc.

James J. Beach, Jr., regional sales manager, has been appointed national sales manager. Both were effective Jan. 2.

Brooks & Perkins Names Executive V-P

Edward H. Perkins, Jr., has been named executive vice-president and general manager of Brooks & Perkins, Inc. He has held various positions with the Company; most recently as vice-president - general manager. Before joining Brooks & Perkins, he was a sales engineer with The Aluminum Company of America.

Perkins

He is a Liberal Arts and Metal-

Continued on Page 108

ACE
PALLET ROLLERS
Free Your Forklifts For The Jobs They Do Best
You can use your forklifts far more efficiently when Ace Pallet Rollers take over the short moves. Five special-purpose designs available.
ACE SWIVEL KING (right) permits effortless movement *in any direction.* Five frame sizes, 4000 lb. capacity. Send for Engineering Bulletin 104K.
ACE ENGINEERING CO.
222 Napoleon Street · San Francisco

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PRACTICAL IDEAS FOR "STRETCHING WALLS"

Here are 2 eye-opening case histories-actual applications showing how DOLIN MOBILE STORAGE SYSTEMS can either add considerable storage capacity within existing areas or condense storage areas into much less space than is normally required. We shall be most pleased to show with free layouts of your storage areas, how our unique pay-for-itself aisle elimination system will benefit your firm in many ways.

CASE HISTORY—
STOCK PARTS CAPACITY TRIPLED IN SAME AREA

This active storeroom for aircraft stock parts was originally filled to capacity with 307 shelves. Conversion to DOLIN MOBILE STORAGE now provides for a total of 910 shelves in exactly the same area—a gain of 603 shelves! This permitted consolidation of several separate storage areas into one central area. The secret? Elimination of obsolete aisles.

CASE HISTORY—
SAVED: 13,000 SQ.FT. OF VALUABLE FACTORY SPACE

This active storeroom of 25,000 stock parts originally occupied 24,000 sq.ft. of space in 2 separate areas with separate personnel. After conversion to DOLIN MOBILE STORAGE the same 2 areas were combined into 1 area of only 11,000 sq.ft. with only 1 working crew now necessary. This installation is paying for itself in only 3 years.

FREE LAYOUT and SURVEY

DOLIN METAL PROD., INC.
DEPT. MSHE, 315 LEXINGTON AVE.
BROOKLYN 16, N. Y.

☐ Please survey our.....area to show the benefits of MOBILE STORAGE. (No obligation)

☐ Please send MOBILE STORAGE "IDEA KIT"

NAME .....

CO. .....

ADDRESS .....

CITY & STATE .....

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INDUSTRY NEWS

lurgical Engineering graduate of the University of Michigan.

Gould Appoints Tench In Charge of Sales

John R. Tench has been appointed vice president in charge of sales of industrial batteries for Gould-National Batteries, Inc.

Tench

He will headquarter in Trenton, N.J. Tench succeeds M. W. Heinritz. Heinritz remains with the company as a vice president and is associated with the Industrial Division in an advisory capacity. Tench's most recent position was vice president, personnel and labor relations.

Valentine Heads Yale & Towne Corporate Post

Harold P. Valentine, former Ford International executive, has been elected vice president—International, The Yale & Towne Mfg. Co.

The new post was created by the company "to bring together under one executive officer immediate responsibility for direction, coordination, and promotion of Y & T's activities in markets outside the United States and Canada."

Before joining Yale & Towne, Valentine served for 15 years in international operations. He was vice president of Mack Motor Truck Corp., general sales manager of Ford Motor Company's International Division, and director of marketing for Curtiss-Wright Corp.

Named Works Manager

H. F. Froehlich has been appointed works manager of the Royal Oak, Mich., Equipment Plant, Ford Motor Company's Tractor and Implement Division.

Froehlich

Froehlich formerly was vice president in charge of manufacturing for Sherman Products, Inc. before that company's acquisition by Ford in July. He had joined Sherman in 1957 from J. H. Marks Consultant Engineers, Detroit.

Latest Hyster Co. Appointments

William C. Brewer has been named to supervise advertising and sales promotion activities for Hyster Company's Industrial Truck Division. Jack Cairns will assume new duties with Special Products Engineering.

Brewer

Cairns

Brewer joined Hyster in 1951. In other company changes, Hugh Richmond has been appointed supervisor of Special Products Engineering Department activities in Portland, Oregon, and Danville, Ill. Dick Chase has been named to supervise the Special Products Engineering Department branch in Danville.

National Sales Conference

Moline Malleable Iron Co. recent-

REMOVE COILS FROM PALLETS QUICKLY & EASILY

- Safe
- Labor-Saving
- Efficient
- Won't Damage Material!
- Self-Contained
- Automatic
- Portable

Sizes to handle loads from 3,000 to 40,000 pounds. Prices start at $2000.

Fork truck sets palletized coils on bed of cradle.

Cradle tips backward as base rotates.

Cradle nears end of 90° backward tip as it is finishing its 180° rotation.

Coils, now off pallet, face truck and are ready to fork.

turnover cradle

A Product of LA DEAU MANUFACTURING COMPANY
2702 San Fernando Road, Los Angeles 65, California
Telephone CApitol 2-8108

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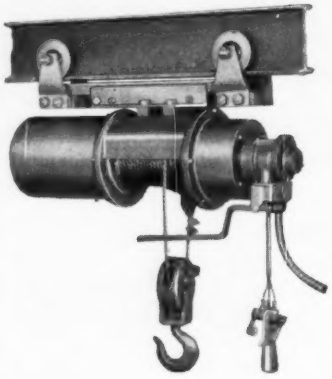
Worth Looking Into...

DETROIT AIR HOISTS



Ask for Bulletins 860, 861, 862

Push Button Control

Other Modern Design Features

Consult us on Air Hoists for every type of application

DESIGNERS AND MANUFACTURERS FOR NEARLY SIXTY YEARS

DETROIT HOIST & MACHINE CO.

8215 Morrow Street • Detroit 11, Michigan

Designers and Manufacturers Since 1905

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ly held a 3-day national sales conference in St. Charles, Ill. Representatives and distributors of Moline conveying, elevating and power transmission chains were flown in from all sections of the US and Canada.

Highlight of the conference was a tour of the enlarged Moline plant. It has a new $500,000 building annex that houses chain assembly and heat treating facilities.

6th Annual Sales Conference

Acme Chain Corp. representatives from all parts of the country recently gathered at Chicopee, Mass. for the company's 6th annual sales conference.

John Hayden, sales manager, was conference chairman. He reviewed the 1960 sales picture which showed improvement over 1959. The group toured Acme's new plant and reviewed latest manufacturing methods in roller chains and power transmissions.

New Sales Post

Joseph H. Dolan has been appointed assistant to general sales manager at Brown Trailer Division, Clark Equipment Co.

REGIONAL BLOOD CENTERS will use ten new hand trucks donated to The American National Red Cross by The American Pulley Company. A certificate acknowledging the donation of the two-wheeled vehicles is presented to American Pulley representative Harry Scullion (left) by Mrs. William J. Murray, Jr., member of the Red Cross Board of Governors, Austin, Texas. Red Cross Vice President Ramone S. Eaton looks on. The donation was the first in the Philadelphia manufacturer's six month schedule of nine presentations to charity organizations throughout the country.

Continued on Page 110

Circle 63 on Reader Service Card

PAY NO MORE
BT PALLET TRUCKS
HEAVY DUTY
ALL HYDRAULIC

NOW ONLY $350.00 F.O.B. Chicago

- Lowered Height 3¼"
- 90° PIVOT—2-Ways
- Lift 5"—SKF Bearings
- For Single or Double Face Pallets & Skids

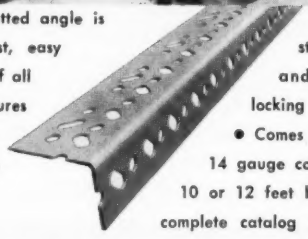
YOUR CHOICE of sizes in either model:
Widths: 20½" or 27"
Lengths: 36", 42" or 48"
Wheels: Steel, Rubber or Bakelite (at no extra cost).
Specify Model No., Fork width and length and type of wheels wanted.

BT-24—2400 lb. Cap.....$350.00
BT-44—4400 lb. Cap.....$395.00

WRITE—WIRE—PHONE Dealer Inquiries Invited

INDUSTRIAL HDLG. EQUIP. CO.
1223 W. Monroe St., Chicago, Ill.
Phone MOnroe 6-8554

FRONTIER
slotted angle
galvanized or baked enamel finish
SAVES TIME MONEY



- Frontier slotted angle is ideal for fast, easy construction of all types of structures racks, ramps, platforms, etc.
- Just 3 easy steps—measure, cut and bolt with self-locking nuts.
- Comes in 12 gauge and 14 gauge cold rolled steel in 10 or 12 feet lengths. Write for complete catalog and load charts.

FRONTIER MANUFACTURING CO.
P. O. Box 13266, Dallas 20, Texas

Ask about our complete line of steel shelving and shop equipment.

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CUT COSTS
for Packing BAGS

FILL and WEIGH with
CODDINGTON
AUGER-MATIC
Bag Packer

Low Cost, portable AUGER-MATIC packs any material from powder to pellets in paper bags . . . shuts off automatically when desired weight is reached.

Valve bags fit snugly on AUGER-MATIC spout so no dust escapes . . . keeps bags clean . . . eliminates costly tieing or bag closing equipment.

--------FILL OUT AND MAIL TODAY--------

E. D. CODDINGTON MFG. CO.
5080 N. 37th Street, Milwaukee 9, Wisconsin

Please send me facts on Cutting Valve Bag Packing Costs

MY NAME.....
COMPANY.....
ADDRESS.....
CITY.....ZONE.....STATE.....

Circle 101 on Reader Service Card

INDUSTRY NEWS

Paterson-Leitch Co. Enters Material Handling Business

Paterson-Leitch Co., 46-year old Cleveland steel company, has purchased the 4-year old Becker Crane & Conveyor Co., also of Cleveland.

Becker will operate as a wholly owned subsidiary. Frank N. Becker, founder of the company, continues as president.

R. M. Beutel, president of P-L, says the acquisition was made to expand and diversify industry services.

Fills Yale & Towne Corporate Position

A. Clifford Thornton has been elected vice president, personnel of the Yale & Towne Mfg. Co., a newly created corporate post.

Thornton

He will be responsible for coordinating and administering personnel and industrial relations policies throughout the company. He will headquarter in New York City.

Before his election at Yale & Towne, Thornton served as director of personnel and industrial relations of the International Minerals & Chemical Corp. He was with this company 18 years.

Case Co. Consolidates Industrial Division Work

Consolidation and centralization of its Industrial Division operations has been announced by the J. I. Case Co.

Regional offices have replaced branch office operations. They are in Syracuse, Atlanta, Racine, Dallas, and San Francisco. In Canada, they will be located in Toronto and Regina. The United States is separated into three sales divisions, with a fourth in Canada.

All activity relating to industrial orders, credit, billing and accounting will be handled in the Racine central office. Sales and service management will be conducted from the regional offices.

Gould Manager Appointments

Guy R. Porter, Jr., has been promoted to Atlantic regional manager, Industrial Division, Gould-National Batteries, Inc. He will operate from regional headquarters in Philadelphia. Porter has been with the company since 1948.

George P. Millington, Jr. has been advanced to Central Zone manager. In his new position covering 16 midwestern states, he will headquarter in Trenton, N.J. He has been with the company since 1946.

Porter

Millington

Distributor News and Company Reps

Automatic Transportation Co. has appointed **Great Arrow Equipment Corp.** as its franchised representative for the Buffalo-Rochester area. Great Arrow is headed by **Raymond F. Brayer.**

The Lanham Co., manufacturers of skid platforms, Rollaway skid platforms, and jacks, has named **Reid-**

AT LAST!

AN AUTOMATIC BATTERY RECHARGER!

- Increases Battery Life
- Lowers Maintenance Cost
- Saves Space
- No Moving Parts — *IT'S FULLY AUTOMATIC!*

A completely new concept in battery recharging, developed by the pioneer of Silicon self-regulating battery chargers. Units can be mounted on wall, floor, or truck.
Over 70 standard models to choose from. More than 18,000 units in use today!

Guaranteed for one full year by:

LaMarche Mfg. Co., Inc.
3955 25th Ave. Schiller Park, Ill.
GLadstone 5-8855

Circle 64 on Reader Service Card

In February Don't Miss . . .

MHE's three top-level articles that will give you help in a variety of fields.

A Buyer's Map to the Equipment Jungle will tell you how to select a vendor . . . how to work with your purchasing agent in selecting equipment . . . do's and don't's of good buying.

Material Control—How Do You Fit In? is the kick-off article in MHE's Project Upgrade series. It will help you analyze your own background and talent for assuming new responsibilities in material handling. These responsibilities lead to the top job shaping up in material control: *manager of material flow.*

Engineer Automatic Weighing into your Handling System tells you what's available in weighing techniques and equipment. A good starting point for better control of your product.

The Industrial Volcano — San Francisco is a report on material handling at the site of the MHI Pacific Coast Show, February 22-24.

Holcomb Co., Inc. to cover the Indianapolis trading area.

The Raymond Corporation has appointed Donald S. Pratt field sales representative. He will locate in Chicago.

Uhrden, Inc., has appointed **Power Items, Inc.**, as distributors of Tubar material handling equipment for the Metropolitan New York area.

Jervis B. Webb Co., Detroit conveyor engineers and manufacturers, has appointed **Thomas B. Longan** as sales engineer for the company's Bulk Systems Division in the Cleveland territory.

CLASSIFIED ADVERTISING

Rates: Cost of all ads in this section is $20 for the first inch and $15 for each additional inch or fraction. Rates for display ads in this section will be sent on request. All classified advertising is payable in advance.

Help Wanted

REPRESENTATIVE WANTED in your territory. From your desk you can earn a substantial addition to your income. Only written contracts with your clients! Write for particulars and further details to VKK-Office, Vienna 66, P.O.B. 128, Austria.

SALESMAN WANTED

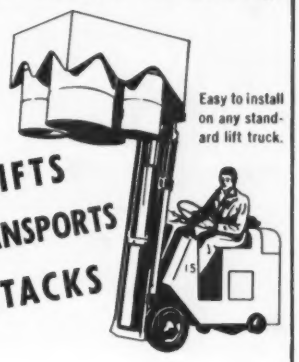
AAA1 rated manufacturer seeking special field representative, eastern states, to develop distributor sales program, power sweepers. Complete line, protected territory, substantial salary and expenses. Applicants must have a proven background of successful sales to material handling companies. Send complete resume to H. L. Croskey, Sales Manager, Clarke Floor Machine Company, Muskegon, Mich.

Service Manager for established fork lift truck factory branch operation. Midwest location. Experienced only. Send complete resume. Our employees know of this ad. Write to MATERIAL HANDLING ENGINEERING, Box 1161.

Representatives wanted to contact janitor supply, materials handling, and industrial supply trade on new power floor sweeper ($300 to $500 price range) built by nationally known manufacturer. Write MATERIAL HANDLING ENGINEERING, Box 1261.

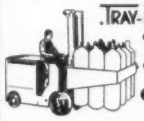
Circle 94 on Reader Service Card

Safe DRUM Handling



DRUM CARRIER

- Alignment compensator automatically places drums into gripping position.
- Carrier loads over drums.
- Gravity action causes gripping shoes to securely hold load.
- Release can only be effected by application of hydraulic pressure.
- Standard models handle standard 55-gallon drums in diameters from 22¼" to 24¾", and permit 6" variation in height in same load.
- Special types available for Monorail, Crane, and other applications.



TRAY-HART CYLINDER CARRIERS

- All sizes and types of cylinders handled with ease.
- Quantity according to lift truck capacity.
- Write for complete information

Manufactured by

WALZ & KRENZER, Inc.

22 Flint Street, Rochester 8, N. Y.

No more marking problems

with an automatic "ROLACODER" marker

Attaches to conveyor, case-sealer, etc. to mark from side or top • Works by friction • Imprints legible mark in same spot on case after case • Holds up to full week's supply of ink • Takes only 1 or 2 minutes to change type • No tricky adjustments • Precision-made for long trouble-free service • Pays for itself in months • Other models for marking 2 and 4 sides simultaneously

Write for "ROLACODER" literature

First and foremost in automatic production-line CODING, MARKING and IMPRINTING machines — Gottscho®

GOTTSCHO Dept. D
HILLSIDE 5, N.J.

In Canada: Richardson Agencies, Ltd. • Toronto & Montreal

Circle 45 on Reader Service Card

Only BROOKS & PERKINS MAGNESIUM DOCKBOARDS have all these advantages

EXCLUSIVE RUGGED FORGED ENDS ON ONE-PIECE CURB
FULL LENGTH HAND-GRIP FOR SAFE FAST HANDLING
YELLOW SAFETY LANE MARKINGS ON ALL BOARDS
HEAT TREATMENT AFTER WELDING FOR LONGER LIFE

— AND MANY OTHER IMPORTANT CONSTRUCTION FEATURES THAT WILL HELP CUT YOUR LOADING DOCK COSTS!

Compare the B & P Dockboard features before you place your next order. Write today for the fact-packed B & P Dockboard folder!

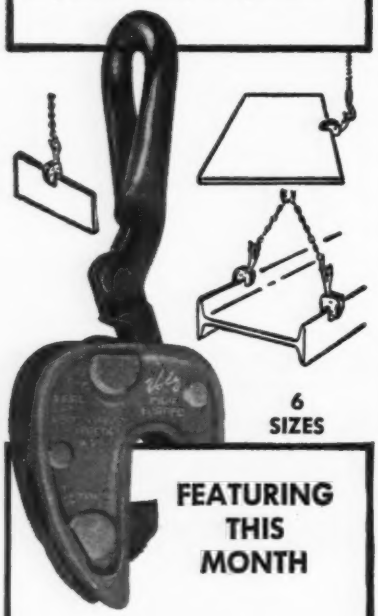
BROOKS & PERKINS, Inc.
1938 WEST FORT STREET • DETROIT 16, MICHIGAN

MANUFACTURERS OF LIGHT WEIGHT PRODUCTS AND ASSEMBLIES

Circle 7 on Reader Service Card

YOUR BEST MOVE . . . MOVE with **MERRILL** MATERIAL HANDLING DEVICES FOR THE MOST IN *Safety and Economy*

Imitated, but never duplicated, Merrill Lifting Clamps are Drop Forged to give you Safety in Handling and Economy in Operation.



6 SIZES

FEATURING THIS MONTH

MERRILL DRUM LIFTER

Over 25 Material Handling Devices described in our catalog C-2.

Ask for a copy.

MERRILL BROTHERS
Producers of Drop & Press Forgings
56-74 Arnold Ave., Maspeth, N. Y.
1-60

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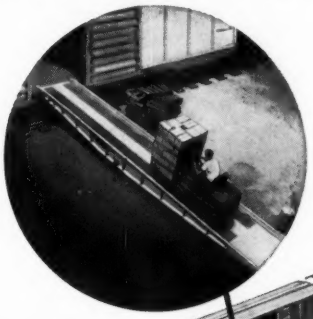
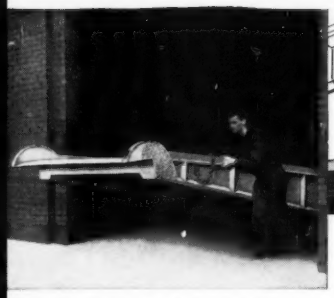
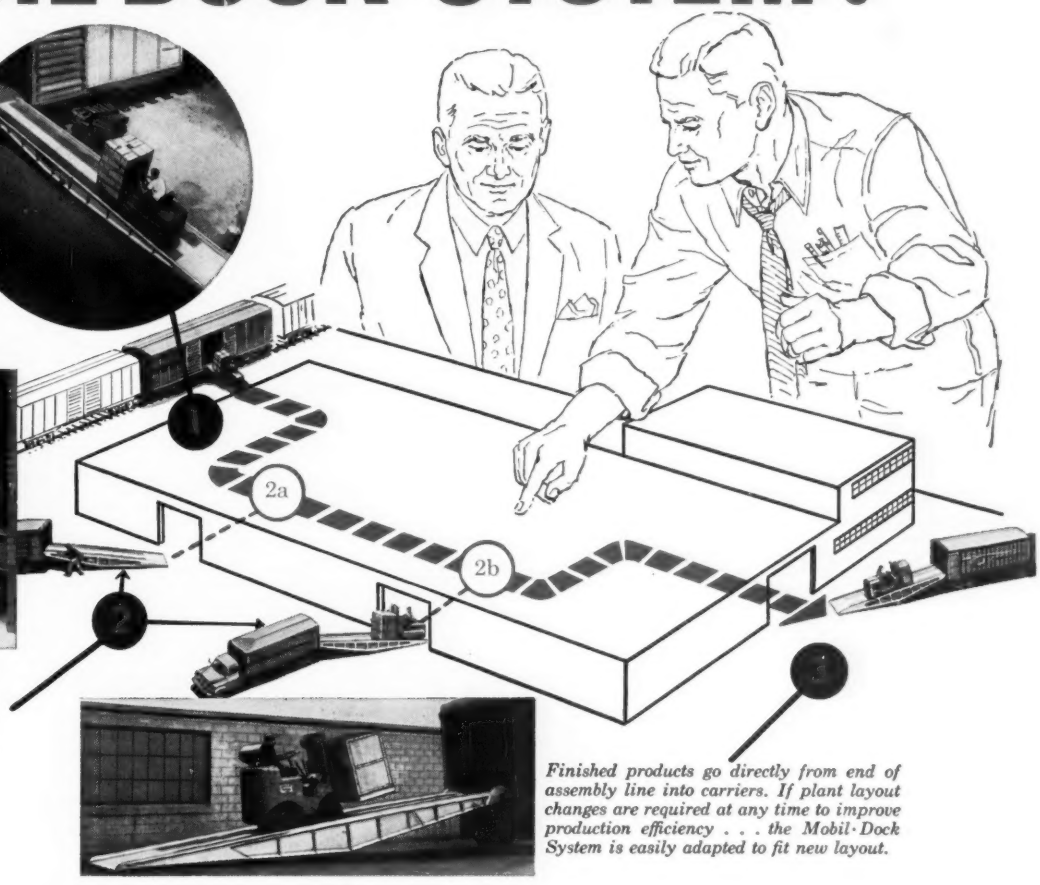
MOBIL·DOCK SYSTEM!



Mobil·Dock is used to unload materials from railcars near start of assembly operations.



Here, additional in-process parts are unloaded from trucks right where they're needed in the assembly operation (2a and 2b). There's no need to shuttle loads from receiving dock to assembly points.



Finished products go directly from end of assembly line into carriers. If plant layout changes are required at any time to improve production efficiency . . . the Mobil·Dock System is easily adapted to fit new layout.

NEW GROUND-LEVEL LOADING SYSTEM CUTS HIGH COST OF FIXED-POINT SHIPPING AND RECEIVING . . . ELIMINATES DOUBLE LOAD HANDLING!

Now you can layout, modernize or expand facilities to meet your changing production needs . . . quickly set up receiving and shipping points *exactly where they're needed* for fast, efficient low-cost handling! A Magliner Mobil·Dock System eliminates multiple-handling problems, cuts the high cost of fixed-point shipping and receiving! You load and unload where you want to . . . change plant layout when you want to . . . keep materials flowing on a *shortest-distance basis.* A *flexible, economical* ground-level loading system that fits an infinite variety of plant and warehouse layouts—brings big, important cost-savings wherever it's used! The application shown above is typical of how Mobil·Dock is saving thousands of dollars for large and small companies alike.

MAGLINER MAGNESIUM MOBILE LOADING RAMP:
BASIS OF THE MOBIL-DOCK SYSTEM. A loading dock on wheels, the Magliner Mobile Loading Ramp is lightweight for easy one-man handling . . . ruggedly constructed to handle loads up to 16,000 lbs., more if you need it. Hydraulic lifting unit provides fast, simple height adjustment to truck or railcar floor. Heavy-duty non-slip grating tracks provide safe, sure all-weather power truck traction.

Send today for Engineering Bulletin MD-212

See how other companies engaged in manufacturing, processing, warehousing, etc., are solving high-cost materials handling problems with the Mobil·Dock System. **MAGLINE INC., P.O. BOX 11, PINCONNING, MICHIGAN**

MOBIL·DOCK

SYSTEM OF GROUND-LEVEL LOADING

Circle **51** on Reader Service Card

"Well, maybe that's it . . . but are you sure it will do the trick?"
"No doubt about it! I saw one just like it in MATERIAL HANDLING ENGINEERING

Problems are meant to be solved . . . and chances are good someone else is tackling a problem like yours this very minute. It's a good bet that something seen or read in MATERIAL HANDLING ENGINEERING has helped provide the best solution. MATERIAL HANDLING ENGINEERING is written by specialists for men like you. It is edited to solve problems in material handling, packaging, shipping. You are sure to find solutions to many of your problems between the covers of every issue. Take advantage of MATERIAL HANDLING ENGINEERING'S problem-solving editorial content. And, for full details on any item described or advertised in this issue, just use the handy Reader Service Cards.

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